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Original Communications

THE DIAGNOSIS OF DISEASES OF THE ESOPHAGUS.*

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With the introduction and development of diagnostic methods which furnish positive objective data regarding the normal function and disease processes of certain organs or structures, it usually follows that much of our knowledge of these diseases must be revised. Such was the case when esophagoscopy was placed among the safe and scientific methods in esophageal diagnosis.

In a review of many of the text-books of medicine of the past decade it was impressive to note that diseases involving the esophagus were given very brief consideration and that much was to be desired in the matter of diagnosis. As a result, too little attention was paid to this very important organ and the medical practitioner was prone to regard certain early symptoms of esophageal disease as having a functional rather than an organic basis.

That the esophagus is heir to many ills is shown by the categoric list of causes of dysphagia tabulated by Chevalier Jackson.[1] In a brief resume of these it should be recalled that the esophagus is a long, loose, redundant, movable, muscular tube which occupies such space as may be allowed it by surrounding viscera; that, while at rest, it is collapsed with its walls in apposition, being open only during the passage of food or fluid; that its function is to convey to the stomach, by a series of co-ordinated muscular contractions, food and fluids as well as a large quantity of saliva, more or less continuously secreted; and that it lacks a definite sensory nerve supply. It therefore follows that any pathologic process which either compresses the esophagus from without or involves the esophageal wall itself will encroach on its lumen and produce a variable degree of interference with the function of swallowing; that any disturbance of the esophageal innervation or the co-ordinated muscular movements will produce either actual dysphagia or will set up certain abnormal reflexes which interfere with normal function, and, further, that pain, a symptom of vast importance from the standpoint of the patient, is rarely an early symptom, being more often observed in the latter stages of disease.

Symptomatology.—The most common and very often the only symptom of esophageal disease *is a disturbance of the swallowing function.* This may be an indefinite subjective sensation which cannot be accurately described or localized except in a very vague manner. These sensations may be observed only when swallowing foods; they may be felt whenever the patient swallows even though it be only saliva, or there may be the sensation of a lump in the throat. A very important point to remember is that these sensations are often intermittent, also that there is a grave tendency to consider them as trifling or attribute them to nervousness or hysteria.

Globus hystericus, a common manifestation of so-called hysteria, is often observed in organic diseases of the esophagus. In these cases it is a reflexly excited spasm of a pharyngeal muscle, usually the crico-pharyngeus. The exciting lesion is often located in the lower thoracic esophagus and not at the level of the upper esophageal orifice where the sensations have been localized by the patient. Sooner or later these disturbances may progressively develop into a definite dysphagia so that solid or even soft foods cannot be swallowed. On the other hand, a patient may suddenly develop marked dysphagia without previously having had any symptoms referable to the esophagus.

Pain.—This symptom, if present, is invariably late and is therefore without practical value in diagnosis. Absence of early pain is an extremely common circumstance and also undoubtedly an unfortunate one so far as early

*Read by invitation before the Southwestern Virginia Medical Society, at Roanoke, March 30-31, 1926.

1. Jackson, Chevalier. Bronchoscopy and Esophagoscopy, Textbook, 1922.

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diagnosis is concerned. It is not an uncommon experience to have a patient state that, although he noticed "there was some trouble in swallowing solid food, *it did not pain him at all* and therefore he did not worry until he began to lose so much weight." Pain when present is usually always a late manifestation, its absence is of no significance. Exceptions to this are pointed foreign bodies lodged in the esophagus which, by penetration or perforation of its wall, would produce considerable distress.

For purposes of localization it is of little value as the pain areas usually do not correspond to the actual position of the lesion. Foreign bodies in the esophagus, especially in the cervical portion, may be considered as an exception, but even in these there may be confusion as was observed in the case of a man with a tooth plate lodged in the esophagus at the level of the suprasternal notch. There was no pain referred to the neck; however, he complained of a sticking sensation referred to the left of the midline opposite the ensiform cartilage. This disappeared following removal of the foreign body by esophagoscopy.

Other symptoms occurring are emaciation, hematemesis and regurgitation. These usually occur late in the disease. Cough may occur and usually is the result of overflow of secretion into the larynx.

Diagnosis.—In order to be of more than academic interest, a diagnosis should be arrived at sufficiently early in the course of a disease so that the patient may enjoy all the advantages that treatment can offer. No special credit is due anyone for having made a diagnosis of cancer of the esophagus in an aged patient who has had dysphagia with progressive weight loss developing over a period of many months and is now slowly starving. *To be of value in cancer, the diagnosis must be made early, and must be positive.*

In the routine examination of every patient a carefully taken history is very important. Exhaustive and systematic inquiries should be made to elicit a possible etiologic factor. Dysphagia may have followed an attack of typhoid fever, diphtheria or scarlet fever. It may have come on during pregnancy. There may be elicited an account of the accidental or intentional swallowing of a caustic or corrosive substance. Valuable as this information may be, one must be cautious in arriving at hasty conclusions. An analysis of the history is often best made after the diagnosis is completed. The patient with aneurysmal compression of the esophagus may have attempted to swallow too large a bolus of food. Advanced cancer of the lower end of the esophagus may not yet encroach on the lumen of the esophagus to produce dysphagia, but may reflexly excite a spasm of the crico-pharyngeus which conforms in every respect to globus hystericus.

Careful general physical examination, including mirror laryngoscopy, will often give a clue to the diagnosis. Patients with a tuberculous laryngitis, recurrent paralysis of the larynx, or neoplasm involving the laryngopharynx often complain of difficult or painful swallowing. Dysphagia may occur in aneurysm of the aorta or in mediastinal neoplasm.

A routine Wassermann test of the blood should be made. Aneurysm and a positive Wassermann test usually always coexist.

These studies should always be carried out, not with the expectation that they will, in themselves, be sufficient to warrant making a positive diagnosis, but as a source of collateral information they will be of aid in verifying a positive or negative opinion based on further studies.

The final and outstanding aids in diagnosis of esophageal disease are, first, *roentgenology* to corroborate the physical findings in the chest and to study the function of the esophagus, and, second, *esophagoscopy* to inspect the interior of the esophagus.

Roentgen-ray study of the chest by fluoroscopy and by stereoroentgenograms will contribute much in the diagnosis of mediastinal disease which may give rise to esophageal symptoms as a result of compression or displacement. Esophageal function can be studied only by fluoroscopy with the aid of an opaque mixture and a bismuth or barium filled capsule. In this way there can be detected the presence of any disturbance in esophageal function, any deviation of its course, or abnormality in its lumen. These findings can be interpreted in terms of pathological changes and in many instances are correct; however, they cannot always be accepted as conclusive, and should be supplemented by esophagoscopy.

Esophagoscopy gives information based on direct inspection of the interior of the esophageal lumen. It has the virtue of being exact, and should, therefore, be considered as the

final arbiter in esophageal disease. It can be readily carried out by one trained in this procedure with a minimum of distress to the patient, with a maximum of safety, and without anesthesia, general or local. In certain cases specimen of tissue may be removed for histological examination.

The use of the bougie and all other methods blindly carried out are to be condemned as being dangerous, inconclusive and useless. When cancer has developed to such a size that it will obstruct the onward passage of a bougie there is little to be gained in diagnosis. The bougie is unable to differentiate between the ordinary pulsion diverticulum and one in which there is beginning malignancy or where there is subdiverticular stenosis of the esophagus; an uncomplicated cicatricial stenosis and one with beginning cancerous changes present no points of differentiation by bouginage. Blood on the tip of a bougie may indicate benign ulceration, erosion, cancer or trauma to the esophageal wall.

Conclusions

1. Every patient complaining of symptoms or sensations referable to the esophagus should be given the benefit of every diagnostic measure to determine the presence of actual disease.

2. A diagnosis of globus hystericus should not be made until after complete and thorough studies have failed to reveal any evidence of disease.

3. No esophageal study should be considered as completed until after a roentgen-ray study and esophagoscopic examination have been considered.

4. Blind methods of examination and treatment are dangerous and inconclusive and should be condemned.

128 *South 10th Street.*

CHOLECYSTOGRAPHY.

By FRED M. HODGES, M. D., Richmond, Va.

In February, 1924, Drs. Graham, Cole, and Copher, of St. Louis, in an article in the *J. A. M. A.* entitled "A Preliminary Report on the Roentgenographic Examination of the Gall-Bladder, a New Method Utilizing the Intravenous Injection of Tetrabromphenolphthalein Sodium Salt," describe a method which shows the gall-bladder on the roentgenogram almost as clearly as the barium meal shows the stomach. Graham began this work with the theory that if he could obtain a substance relatively non-toxic and soluble, containing a metal or atoms of iodine or bromine which could be carried to the gall-bladder in sufficient concentration, this material in the gall-bladder would make it opaque to the roentgen ray. Necessarily the substance would have to be excreted by the liver and carried to the gall-bladder in the bile. Using the knowledge that the gall-bladder concentrates its bile, he reasoned that a certain time would have to elapse before a shadow of maximal density would occur. He also concluded that a normal gall-bladder would show the densest shadow, and that if the liver were too badly diseased to excrete the material or the cystic duct were blocked or the function of the gall-bladder seriously impaired, no shadow would occur. During their investigations they used a great many compounds which were the derivatives of the phenolphthalein and phthalein groups, and finally recommended tetrabromphenolphthalein.

In January, 1925, Whitaker and Milliken recommended the use of sodium tetraiodophenolphthalein, since this salt is no more toxic and is about twice as opaque to the roentgen ray as the tetrabrom.

Either the tetraiodo or tetrabrom salt can be given orally in enteric coated capsules or intravenously. With either method food should not be taken after the administration of the salt since, if food is in the duodenum, bile is poured into the intestine, and even in normal gall-bladders there might not be enough concentration of the salt in the gall-bladder to show a shadow on the roentgenogram.

When the drug is given intravenously, a faint gall-bladder shadow can usually be seen from about the fourth to the seventh hour afterwards. The shadow of the normal gall-bladder as a rule increases in density until about the twenty-fourth hour, but at this time it is about half the normal size. From this time until the thirty-sixth to forty-eighth hour the shadow gradually decreases in size until it disappears entirely.

In cholecystography we have not only an unusually accurate method for the study of diseases of the gall-bladder, but also for the study of gall-bladder function. The size, contour, and position of the gall-bladder shadow are plainly visible. Cholesterol or negative

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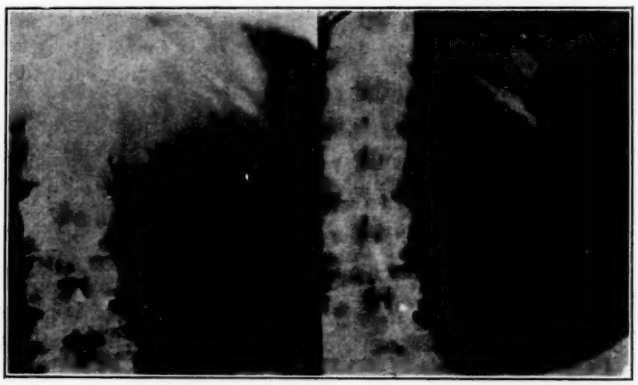
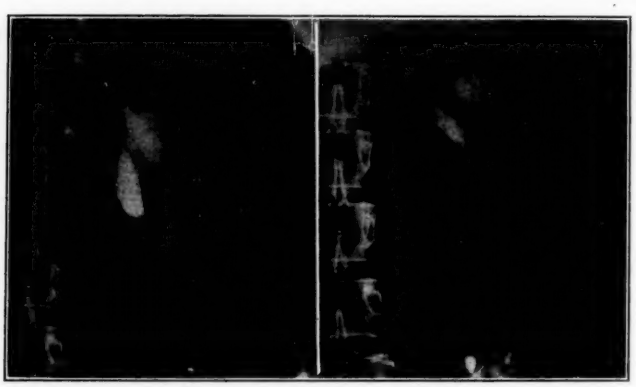
gall-stones show as less dense areas within the gall-bladder shadow. Adhesions distort or pull the gall-bladder to one side. Of more value probably than any of these are the findings in the cases where no gall-bladder shadow or a very faint shadow shows. Where no shadow at all shows, especially by the intravenous method, usually there is an obstruction of the cystic duct or marked disease of the walls of the gall-bladder. Graham has shown that usually in cholecystitis, the interstitial tissues and lymphatics of the gall-bladder and not the mucosa are diseased, and that this is probably due to the fact that gall-bladder inflammations are so frequently associated with a lymphangitis secondary to a hepatitis. When the lymphatics of the gall-bladder wall are diseased the organ loses its power of concentrating the bile and in the same way the power to concentrate the dye and give a dense shadow. A very serious disturbance of the liver function might also cause an insufficient amount of the dye to be excreted to cast a shadow of the gall-bladder, but in all probability in such instances there would be some clinical evidence of liver disease. When using the oral method a marked disturbance of intestinal digestion and absorption might prevent enough of the dye being carried to the liver to cast a shadow of the gall-bladder.



Case 1. Fig. 1. Normal gall-bladder after tetraiodophthalein.
Fig. 2. The same case one hour after taking eggs and buttered toast.



Case. 2. Fig. 1. A rather small but normal gall-bladder.
Fig. 2. The same gall-bladder one and a half hours after eggs and buttered toast. The shadow shows distortion, and the stomach filled with barium showed the duodenum fixed in the gall-bladder area. Proven at operation.

Sosman, using cholecystography, has made a rather extensive study of the function of the gall-bladder. After using many drugs and foods by mouth and duodenal tube, he found that fats by mouth cause the quickest and by far the most marked effect on the gall-bladder.

It is not known definitely whether the gall-bladder empties itself through the cystic duct or through the lymph and venous channels in the gall-bladder wall, but within from twenty minutes to one hour after the ingestion of fats, the normal gall-bladder will become very much smaller in size and practically empty itself of all the dye. Sosman was unable to satisfactorily explain this phenomenon, since the gall-bladder gave the same quick response to the ingestion of fats in a patient who had a gastro-enterostomy and closed pylorus. He found that psychic tests, sight, smell, and taste of food had no effect on the gall-bladder. Carbohydrates had no effect; proteins and peptones caused a moderate decrease in the size of the shadow. Olive oil and castor oil, by mouth; atropine, physostigmin, pituitrin, adrenalin, by hypodermic; hydrochloric acid, nitroglycerin, meat extracts, ginger, sugar, starch, glucose, and alcohol, by mouth had no appreciable effect on the size or density of the gall-bladder shadow. Mechanical factors, forced respiration, heat and cold, stimulation of the ampulla of Vater by food, etc., had practically no effect. Magnesium sulphate by duodenal tube had only a moderate effect on the gall-bladder.

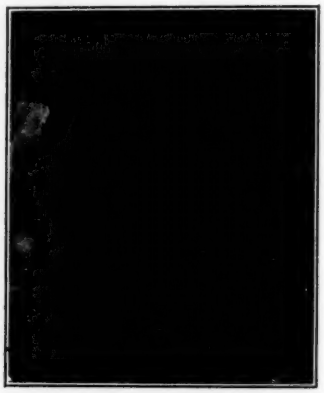
Sosman found that an intact sphincter of Oddi was necessary to obtain a normal cholecystogram. Sodium bicarbonate by mouth caused a slight increase in the size of the gall-bladder shadow. He suggests that this apparent relaxation of the gall-bladder may be the reason why many gall-bladder patients experience some relief after the ingestion of alkalis. We know that fats cause a marked contraction

Case 3. Distortion of the gall-bladder due to adhesions. Proven at operation.

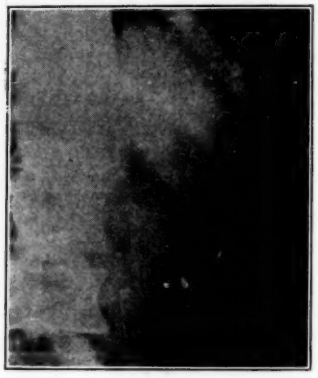
Case 5. A normal gall-bladder shadow with many stones in the right kidney pelvis just beneath. Without the dye test these shadows had been considered due to gall stones.

Case 4. Fig. 1. A somewhat faint gall-bladder shadow.
Fig. 2. The same case one and a half hours after eggs and buttered toast. There was practically no response to this food. Operation showed a diseased gall-bladder.

of the gall-bladder, and he also suggests this as a possible reason why many cases of cholelithiasis avoid fats.



Case 6. Gall stones after the dye test. No gall-bladder shadow seen.



Case 7. Gall stones. A very faint gall-bladder shadow showing after the dye test.

In diseased gall-bladders, the concentration of the dye and the contraction of the gall-bladder depend upon the amount of disease present. Where there is marked disease, practically no concentration occurs. This enables us to frequently determine slight variations from the normal, and it is hoped that by making earlier diagnoses, diseased gall-bladders can be removed, giving complete relief from symptoms before there has been a widespread involvement of the lymphatics, liver, and pancreas.

Cholecystography has become a routine procedure in all large clinics throughout the country, and all of them report the method as accurate in percentages varying from 90 to 96 per cent. The average is about 93 per cent. This is a remarkable record when compared with previous statistics. In our own work the diagnosis has proven correct in 91 per cent.

When positive evidence of gall-bladder disease is found by this test of gall-bladder function, we believe that the method will almost invariably prove correct at operation. Occasionally a gall-bladder functioning normally and reported as normal will be found at operation to be slightly diseased. This, in our experience, is more apt to cause error than is the reporting of a normal gall-bladder as diseased. However, if the time of the appearance of the dye as well as the amount of concentration is taken into consideration, probably very few cases will be reported as normal when there is definite disease present. Where the diagnosis is doubtful after the oral method, an intravenous injection should be done, since only in this way can we be certain that the dye has reached the liver.

Case 8. Negative or cholesterol stones showing in a gall-bladder which functioned practically normally.

Summary

We believe that where this test is combined with the usual gastro-intestinal barium meal examination, and in certain instances an examination of the bile obtained by duodenal tube, a far greater percentage of correct diagnoses in gastro-intestinal diseases will be made than has been possible in the past.

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THE TREATMENT OF SUMMER DIARRHEA.

By WM. B. McILWAINE, M. D., Petersburg, Va.

On account of the unusually cool Spring, so far this year, we have not had the amount of infantile diarrhea generally seen in May in our part of Virginia, but, with the advent of June and hot weather, we may expect to see the number of cases increase rapidly if we are to keep pace with the statistics of last year. The mortality statistics, as sent me by Dr. Brydon, head of the Child Welfare Bureau of the State Board of Health, are as follows:

And so at this time I thought it would not be amiss for us to consider the most recent procedures for the treatment of these cases, almost peculiar to the summer months, in the hope that we may use every means at our disposal to reduce the mortality quoted above. At the outset, let me state that very little of the following is original and that I have drawn freely from all of the periodical and text-books dealing exclusively with pediatric thought and study. But if we are to advance, we can only do so by trying to apply the work of the men who are studying and experimenting in the large centers of medical education, and, as it

Causes of Death	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Dysentery	3	2	2	4	13	37	48	45	31	16	9	4	214
Diarrhea (under 2 years)	12	19	16	17	45	154	216	150	156	131	35	8	959
Diarrhea (over 2 years)	12	10	14	12	25	41	64	44	27	30	15	12	306
Total	27	31	32	33	83	232	328	239	214	177	59	24	1479

is impossible for busy practitioners to get time for necessary rest and recreation, it is obvious that a condensation of scattered facts is at times very helpful.

After this rather tedious preamble, I shall endeavor to focus our attention on the clinical treatment of the diarrheal diseases of infants as seen by us, especially in the summer months.

The medical world in all of its branches is laying stress on the most important feature of any case, namely, the diagnosis, so, in treating a case of diarrhea, we must first of all consider just what the diagnosis of our case is. For simplicity, it seems to me that we may follow the division of Porter and Carter and group our cases into four classes, each of which has a definite cause and symptom and signs, and from which a rational treatment may be outlined—they are:

1. Mechanical diarrhea.
2. Fermentative diarrhea.
3. Proteolytic diarrhea.
4. Infectious diarrhea, commonly called dysentery.

Under mechanical diarrhea we consider the ingestion of some unsuitable article of food or something which sets up a mechanical irritation of the intestinal mucosa and gives rise to a diarrhea. Under this head come the all too frequent cases of undigestible foods, as raw fruit, partly cooked vegetables, heavy pastries, and rich greasy foods. The treatment of a case of this kind is:

1. Castor oil.
2. High colonic flushing.
3. Withdrawal of food and, later, a simple sterile easily digested diet.
4. Bacillus acidophilus culture.

A few authorities may consider castor oil a relic of barbarism, but, in my opinion, this drug still holds its position as probably the most effective single treatment.

The importance of sterility of material taken into the system after a mechanical irritation is to me most necessary, for it is from this mechanical irritation of the intestinal wall that the dreaded bacillus of dysentery gets in its deadly work, so we cannot be too careful in treating these cases. Personally, I also give the acidophilus bacillus as the intestinal flora is always deranged in a diarrhea, for I believe these bacilli help to prevent the growth of abnormal bacteria in the intestines.

In the diagnosis of fermentative and proteolytic diarrhea, we come to the most interesting and instructive feature of our summer diarrhea cases. The two conditions are so frequently not considered and treated as if they were only a simple diarrhea and given calomel, castor oil and a diarrheal mixture. Then, if the case does not improve, another round is given, and if there is still no improvement, the doctor grits his teeth and wonders why the case is so stubborn and whether he had better try one more round of calomel or call in another doctor to help him. The whole trouble lies in the lack of having made a proper diagnosis of the type of diarrhea—fermentative or proteolytic.

The most important differential points between these two forms of diarrhea are emphasized in the accompanying chart form so that proper treatment may be outlined:

DIFFERENTIAL DIAGNOSIS

Fermentative Diarrhea.	Proteolytic Diarrhea.
1. Cause: High sugar feedings, Condensed milk, Malted foods	1. Cause: High protein feedings, High milk protein.
2. Onset: Rather sudden, generally several days on loose stools.	2. Onset: Generally a rather longer period of intestinal derangement.
3. Character of stools: Large, watery, acid, green, odor not so bad.	3. Character of stools: Not so large or watery, not acid, brownish yellow, very foul and of peculiar "mousey" odor.
4. Marked irritation of buttocks.	4. Not marked.
5. Child does not appear toxic.	5. Child generally very toxic.
6. Anorexia not marked.	6. Anorexia marked.
7. Dehydration more noticeable.	7. Dehydration not so noticeable.
8. Restlessness marked; crying and fretting.	8. Child more somnolent and comatose.
9. Texture of skin is dry, skin loose and in folds.	9. Skin has a peculiar "doughty" feel.
10. Loss of weight is more apparent.	10. Loss of weight not so apparent.
11. Acidosis from loss of fluids.	11. Acidosis from toxemia.

We might conclude from the table that diagnosis could be made without difficulty though it is not always as easy as some would have us believe, but we can at least make a fairly good guess, enough to lead to a more rational and effective treatment.

It follows quite naturally that if the organism causing the trouble thrives best on a carbohydrate or sugar media, we should give a protein diet, and *vice verse*, so that the feeding of these cases becomes of paramount importance. I have made up another chart for the treatment of the two conditions which, as can be plainly seen, consists of following the lead given us by the diagnosis.

TREATMENT

Fermentative Dirrhea.	Proteolytic Diarrhea.
1. Dietetic: Protein food best given as protein milk, freshly prepared or in powdered form. Add some carbohydrates, as dextri-maltose, as quickly as possible.	1. Dietetic: Carbohydrate feeding. Withdraw milk entirely. Give milk sugar solution or cereal water. Weak tea and fruit juices. Add milk very slowly, best as buttermilk.
2. Make up fluid loss, water by mouth, rectum, hypodermoclysis, or intraperitoneal.	2. Control toxemia, force fluids. Give stimulants, as brandy and camphor. Support the heart, nad control temperature by active hydrotherapy.
3. Control fluid loss from bowel by small doses of opium; bismuth at times.	3. Rarely necessary, rather eliminate.
4. Control tenesmus, use soda colonic irrigation, starch and opium enemas.	4. Rarely necessary.
5. Treat the irritated buttocks with zinc oxide ointment and keep as dry as possible.	5. Rarely necessary.
6. Replace lost bacillus acidophilus by large dose of culture of the bacillus.	6. Same.

I am sure that we can all recall the clinical pictures of these two types of diarrhea, and I am equally sure that before long we shall be seeing each type this Summer. Cases may vary, of course, from very mild to fatal, but for our purposes I have described the moderately severe cases. In any event, the essential idea is that treatment is to be based on diagnosis,—not simply on the erroneous term of diarrhea.

In the consideration of infectious diarrhea, or dysentery, there is little that needs to be emphasized as to the diagnosis. All of us know it well,—the ill child straining with each of the 20-30 daily movements consisting of blood, mucus and pus, and with high temperature, toxic expression, etc. The picture is so common that it needs no stressing here. The treatment, however, is what we are most interested in at this time. First, let me say that these cases are undoubtedly infectious, as has been proven beyond question, and the organism most frequently met with in this part of the country is the Flexner type of dysentery bacillus. This bacillus produces growths which are profoundly toxic to the human. From the above, both a prophylactic serum and a curative serum should do good. They are highly recommended by many writers. From personal experience, which has been limited to a few cases, I can only say that it is not always easy to give anything to an infant intravenously, and as the serum must be given early to get the desired results, often it is too late when we see the case to use it effectively. Each case is a law unto itself and must be so treated. I have tabulated a few ideas as to treatment as follows:

1. Treat every case as an infection similar to typhoid but much more severe, and as being easily transmitted by hands, clothing and flies.

2. Control toxemia from every possible angle:

a. Constant elimination from skin, bowels, and kidneys.

b. Hydrotherapy, as colonic irrigation, baths, sponging, etc.

c. Force fluids by every means.

d. Control abdominal pain and tenesmus by opium, atropine solution, or cocaine by rectum, this also induces rest and aids in nature's effort to overcome the infection.

e. Stimulate freely, especially with brandy.

3. Diet.—It has been demonstrated that the dysentery bacillus, grown on a media rich in carbohydrates, is less toxic than when grown on a protein medium, so we try to give a food poor in protein. It was found, however, that on an excessive carbohydrate diet, gas distention and toxemia were much worse, so a moderate carbohydrate diet is also used. Personally, when I begin on a food of any kind,

I use a mixture of buttermilk and cereal water or lactic acid milk, but I am becoming more and more convinced that other articles of diet which seem absolutely irrational are sometimes taken well, and at times we are forced by the patient to use things which shock us theoretically but which luckily seem not to hurt the patient; for instance, I am quite sure that after I gave in to the child's desire for Irish potatoes and soft eggs the case improved rapidly, and I am not alone in believing that simple articles of diet, as cereals, jello, soft eggs, toast, etc., are an aid to nourishment in dysentery cases, rather than so much liquid food, especially after the early stages of the disease and in older children. However, let us always remember that we are dealing with a toxemia first, last, and always, and that a strict diet is not a help if it is on the outside of the child. Often we do better by concurring in the child's desires as long as it does not increase the toxemia.

4. Drugs.—a. Castor oil should be given at the start and repeated at intervals depending on the distention and amount of toxemia.

b. Bacillus acidophilus culture, when given in large quantities, theoretically should do good, and it is better to give this than a diarrheal mixture, which may do harm by increasing the toxemia, since the diarrhea is checked and an already weakened stomach is likely to be upset.

As the paper is as condensed as I could make it to bring the subject of Summer diarrheal disease before you, I will not attempt a summary, but will hope that the year 1926 may be a banner year in reducing the mortality of these diseases in the State, especially in our Southside.

410 *West Washington Street.*

CYSTITIS, A SYMPTOM.*

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The entire content of this paper is embraced in its title; and the observations which follow might well enough be omitted if it could be kept consistently and constantly in mind that bladder disturbance rarely represents a disease *per se*, but almost invariably expresses an effect beyond which lies a cause of greater moment.

Apparently, however, the mind does not relish or retain simple dicta without supportive evidence, and hence it becomes periodically the duty of certain specialists to remind the remainder of the profession of any laxity of diagnostic habit represented in the cases referred to them for review. In discharging this duty it is well enough for the specialist to realize that the general practitioner, with multitudinous problems occupying his thought, cannot be expected to remain as acutely conscious of the significance of certain localized situations as is his mentor, whose attention is daily focused upon the narrowed field in which they lie. At the same time, the specialist is not unreasonable in expecting an attentive regard of the data he has assembled to the end that frank ignorance, or simple but regrettable forgetfulness, may less frequently beset the patient's painful, and sometimes disheartening, struggle to restored health.

It is in this spirit of helpful co-operation that the writer approaches again a discussion of the present subject, after a review of the histories of about 1,000 separate individuals subjected to cystoscopic investigation of the urinary tract. He realizes fully that it is a subject stale from frequent handling, and perhaps tiresome to the well-informed audience he is addressing. But he realizes also, and more emphatically, that there are still coming to his hands two pathetic groups of individuals—those whose hematurias have been drugged while their undisclosed carcinomas marched on to inoperability; and those whose inflamed or irritated bladders have been treated to various procedures, while essential and disastrous lesions were becoming ineradicably rooted in kidneys just beyond. It would seem excusable, therefore, again to contemplate this latter group.

The function of the bladder as a reservoir and pump for the streams of urine steadily coming downward from the kidneys makes any interference with its mechanism of immediate, often imperative, concern to the patient. Excretion cannot halt while a crippled or irritated bladder indulges in rest and recuperation. The reception and expulsion of the urine must go on continuously, however intolerant the tissues may be to the accompanying dilatations and contractions. Vesical symptoms, therefore, are inescapable and are rarely ignored by the patient. They frequently ap-

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pear as a major complaint in the history and demand both explanation and relief. It is, consequently, of fundamental importance that the physician to whom this symptom-problem is submitted shall not have his horizon limited to the point at which the disturbance is presenting itself,—else, in many instances, neither explanation nor relief will be forthcoming.

Perhaps in anticipation of the various insults to which it was destined to be subjected, the bladder has armed itself with an amazing degree of resistance to infection. Those accustomed to frequent visual inspection of the interior of this viscus are always interested in the not uncommon fact that a practically normal mucosa is acting as a channel for streams of pus from above. Bacteria of every type, including tubercle bacilli, have been recovered from the urine of patients in whom the bladder yet presented no lesion whatsoever. So great is this ability of the bladder to take care of itself, under all ordinary circumstances, that, in the absence of contributing factors, it is doubtful if a case of true cystitis would ever be known.

The contributing factors, however, are so numerous that vesical symptoms, commonly interpreted as cystitis are very frequently in the foreground. In the first place, it must be understood that it is not even necessary to have actual secondary involvement of the bladder to get bladder manifestations that may dominate the clinical picture. Realization of this fact introduces a wide and varied assortment of etiologic elements which a clearer definition of words will make it possible to exclude from any extended consideration in this paper. The term "cystitis" is usually very loosely applied. Cystitis commonly means bladder distress, but the reverse is not true. Without pyuria, cystitis does not exist, and when the discussion is limited to cases presenting in the urine evidence of actual inflammation, it is feasible to come promptly to a practical working basis without the maze of ramifications which immediately appear when all the possible causes of vesical symptoms, with and without pyuria, are brought under review.

But bare mention will, therefore, be made of the bladder excitability produced (a) by abnormal precipitates or constituents in the urine, resulting either from faulty metabolism or the ingestion of certain drugs or foods; (b) by nervous instability or actual nerve lesions; (c) by the possible allergic influence of certain articles in the diet; (d) by the simple mechanical effects of encroaching extra-urinary organs or tumors, such as pelvic masses in the female; (e) by certain pathologic processes in the anus, rectum, or sigmoid; (f) by various other irregular and unrelated factors which it is impossible to group under any general classification.

When vesical symptoms without pyuria exist, it is well enough to think of these possible causes first, and, if any of them are disclosed, it is reasonable to treat them tentatively as the actual etiologic elements operating, provided a comprehensive general physical examination develops no more likely explanation. If such treatment fails of results, or if such causes are not obvious at the outset, the urinary tract itself should then be explored, for therein also may lie lesions which, by reflex or other relationship to the bladder, may be productive of much vesical disturbance without actual inflammation (or pyuria). Caruncles, strictures of the urethra, minute lesions of the posterior urethra, verumontanitis, small prostatic enlargements, cysts and other growths in the bladder, strictures of the ureter, an occasional aseptic calculus—all these are possibilities here, and more especially that trigonal hyperemia, so frequently overlooked, so pronounced in its manifestations, and so ready to yield to appropriate management.

With the appearance of pyuria, however, the situation immediately undergoes a radical change. The presumptions which were admitted as reasonable hypotheses, as long as there was no evidence of actual inflammation within the urinary channel, are now not appropriate, even tentatively. Instead of a reserved diagnostic approach to the urinary tract itself, taking account first of the various possible extra-urinary causes of vesical disturbance noted above, the procedure must be reversed. The investigation should now begin within the urinary apparatus, and only secondary consideration should be accorded the accessory factors, even when they are definitely present. In other words, when vesical disturbance is co-existent with a pelvic tumor, for instance, and no pathologic elements are present in the urine, and no other etiology is suggested by the general examination, it is safe to presume a connection, and to act accord-

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ingly, reserving exploration of the urinary tract until later in the event of persistence of symptoms after removal of the tumor. But when pyuria is added to the picture, the tumor withdraws from the diagnostic field until a complete urological survey discloses the site and origin of the inflammation. This survey may reveal nothing of essential significance and may result in restoring the tumor to a position of primary importance in the etiology. On the other hand, it may bring to light a coincident renal or other lesion of greater surgical significance than the tumor itself. The surgeon may then remove the tumor if he pleases but he will not be blind to the fact that adjacent pathology of equal moment is awaiting his attention before he can cure the "cystitis" which initiated the inquiry.

Many mistakes are made in situations similar to this. Pelvic pathology in women contributes largely to vesical symptomatology, but probably not to the extent currently supposed. The gynecologist is often surprised at the absence of bladder disturbance in patients presenting gross pelvic masses; this is not the rule, but neither is it uncommon. Least of all is it likely that an uncomplicated uterine displacement will frequently cause serious bladder distress. Yet there is in every series of cases the regrettable list of those who, because of vesical disturbance, have had uteri suspended, even in the presence of a pyuria, which should have warned the operator to direct his attention elsewhere.

It will be borne in mind that a complete, not a partial, urological survey is advanced as the absolute requirement in this connection. If, in the hypothetical case submitted, the presence of pyuria leads the observer away from the tumor to the urinary tract but no farther than the blind diagnosis and treatment of a supposed, and possibly existent, cystitis, the situation has been but slightly improved. The cystitis, like the tumor, may actually be present; but again, like the tumor, it may be (and usually is) of purely secondary importance. Before its true relationship to the fundamental pathology present can be disclosed, a much more comprehensive study is essential, and this is possible only by means of the cystoscope.

It cannot be denied that in certain rare instances, a true primary, uncomplicated cystitis presents itself, but the urologist who witnesses the numerous disasters following in the wake of such a diagnosis, when unsupported by cystoscopic data, makes this admission with reluctance; he would prefer to be in position to assert that no such thing is possible and that invariably bladder disturbance, associated with pyuria, is simply an expression of some other underlying condition. Since he cannot reasonably and truthfully do this, he is willing now and then, after a careful general examination, to countenance a preliminary and tentative assumption that the inflammatory process of a given case is local to the bladder when the data seems to point definitely to this as a possibility. No attempt is, therefore, made to insist that every case of vesical distress, accompanied by pus in the urine, should be peremptorily rushed into a cystoscopy. It will usually be found that cystoscopy is eventually necessary, but at the outset the patient may reasonably have the benefit of the doubt, provided a specific time-limit is set for the experiment. If the case is actually one of primary cystitis, it will rapidly and permanently clear up under simple local and general treatment. After ten days or two weeks of such treatment, the persistence of pyuria always means additional pathology requiring independent consideration.

Whether cystoscopy is done then or later is a matter of individual choice, provided the ultimate necessity of it is recognized in the event of continued persistence of pyuria. Many cases of pyelitis, upon which pyuria often depends, will yield to simple medical treatment, making cystoscopy unnecessary; many others will not; and there is always the danger that a grade of pathology more complex than a simple pyelitis may be present. Consideration of the treatment of pyelitis would lead into a debatable field not embraced in this paper. In spite of all opinions to the contrary, the writer has always emphatically leaned toward the instrumental treatment of pyelitis, and hence, in a situation such as that pictured above, it has not been his custom to defer cystoscopy, even in acute infections, after the preliminary trial period has demonstrated the inefficiency of more simple measures to control the situation.

When such cystoscopy is undertaken, the true urological picture will usually unfold itself clearly. As indicated earlier in this paper, no cystitis whatsoever may be present though the urine contain much pus; on the

other hand, any degree of actual inflammation of the bladder may be visible. A further search, which will usually embrace the entire urinary tract, will then reveal the condition producing this symptomatic cystitis, or this pyuria if no cystitis be present. It is unnecessary to attempt to discuss in detail the various findings that may ensue. The underlying lesion may lie within the bladder, or below it, or above it. It is most commonly found to be some type of calculous or non-calculous renal infection, varying in grade from a simple pyelitis to an advanced pyonephrosis. Not infrequently, tuberculosis of the kidney will be uncovered; occasionally a neoplasm with degeneration and secondary infection. Often stasis of urine with small or large residuums will be found at the bottom of the trouble—due to stricture of the urethra, or enlargement of the prostate, or cystocele in the female, or stricture of the ureter, or tabes. In many instances chronic infections of the posterior urethra, prostate, and seminal vesicles will appear as the chief etiologic elements; the possibility of non-specific prostatitis must be borne in mind here. Tumors and sub-mucous or other ulcers of the bladder may have to be considered, though, if they alter the urinalysis at all, they usually express themselves with hematuria rather than pyuria. In rare instances a foreign body will be discovered; the writer has recently cured a case of intractable "cystitis" by removing from the bladder of a male patient two large, encrusted boluses of peppermint chewing gum; another by extracting a white-headed pin from the urethra. Now and then the cystitis will appear as the only lesion in the urinary tract proper and will represent a direct extension of an inflammatory process in the female pelvic organs, usually with an accompanying peri-cystitis.

When one contemplates this array of possible causes of cystitis, the futility of blind medication of the bladder becomes strikingly obvious, the danger of ill-advised surgery very real and significant. Not infrequently the time lost while this misdirected energy is demonstrating its inadequacy means the difference between the conservation and the loss of a kidney; sometimes the difference between life and death. Surely when issues of such vast importance may be at stake it is not going too far, in the interest of the helpless patient, to insist that the consideration of the symptom "cystitis" be approached with greater care and circumspection. A few cases chosen at random will emphasize this thought:

Case 1.—Mrs. A. H. W., white, age 33. September, 1919.

About year previously developed pyuria, frequent urination, tenesmus and other indications of cystitis. Went to surgeon who found uterine displacement and considered its cause of trouble. Advised operation, which disclosed also chronic pelvic inflammation. Removal of tubes and suspension of uterus failed to clear up bladder distress, which continued so severe that six weeks later a vaginal cystotomy was done. Subsequently, the fistula showed a tendency to close and had to be reopened. Drainage gave relief for a time, but symptoms soon recurred with all their intensity and patient now comes for investigation of urinary tract.

Cystotomy opening closed temporarily with purse string and cystoscopic examination made. Urine full of blood and pus and bladder would hold only about two ounces of fluid. Examination very difficult. Left ureteral orifice small and normal. Right retracted, large, excavated, emitting streams of pus. Right kidney practically functionless. Left perfectly compensating with function more than twice normal. Right pyelogram showed typical pyonephrosis with evidence of destruction of renal substance. Operation: Right nephrectomy.

Primary diagnosis: Cystitis secondary to uterine displacement.

Correct diagnosis: Pyonephrosis.

Case 2.—L. L., colored, age 23, married, para 4. November, 1919.

Trouble began about year ago with weakness, loss of appetite, scanty and frequent urination, and tenesmus. Sometimes passed blood and mucus and had involuntary evacuations of urine. Five months later went to doctor, who found womb coming down and lying on bladder, which he considered responsible for her trouble. Underwent operation for suspension of womb, but got no relief; on the contrary, has become steadily worse. Now has almost constant desire to void with tenesmus and pain; temp. 101°; white cells 20,000; polys. 77%; urine loaded with pus; no tubercle bacilli on stain.

Cystoscopic: Capacity about ½ ounce. Extensive shaggy ulceration. Heavy sediment. Right ureter finally catheterized after much difficulty. Left not located. Pure, thick pus from right side. Two-hour function test with catheter in right ureter and rubber catheter in bladder. Function on right side 0; on left 80%, showing excellent compensation. Right pyelogram: Typical pyonephrosis. Operation: Right nephrectomy.

Primary diagnosis: Cystitis secondary to uterine displacement.

Correct diagnosis: Pyonephrosis.

Case 3.—Mrs. N. M., white, age 37, December, 1923.

Came complaining of frequent, burning urination. Trouble began a year ago and surgeon undertook to relieve it by a pelvic operation, which did her no good. On the contrary, she grew slowly but steadily worse. Has just come out of a hospital, where for eight weeks she has been under treatment for cystitis. This treatment consisted of bladder irrigations, which caused her much pain. Now voiding more or less constantly with much burning and tenesmus. Cystoscopic exploration of bladder showed ecchymotic, granular and ulcerated areas suggestive of tuberculosis. No. 7 catheter passed to right pelvis; good flow of clear urine with normal indigo-carmin output. Region of left orifice obscured by clots

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and small ulcers and after prolonged search os could not be located; very faint blue haze indicated practically negative function. Bladder urine loaded with pus and tubercle bacilli. Right kidney urine negative for pus or bacteria of any description.

Primary diagnosis: Cystitis.

Correct diagnosis: Left renal tuberculosis with dead kidney.

Case 4.—Mrs. V. C. A., white, age 33.

During latter part of a pregnancy in 1925, developed frequency of urination and some pyuria but no renal pain. Was delivered in April, and about two weeks later began to have muscular contractions and straining after voiding. Urine continued to contain pus. In spite of treatment with urotropin, she grew worse and two months later bladder irrigations were started. From these she obtained considerable relief. In July, a cystoscopic examination was made in Japan; two small healing ulcers were noted; the ureters were not catheterized; the cystoscopist observed clear-looking urine coming from the orifices, and presumed, without further investigation, that the kidneys had no part in the production of the pyuria. The relief obtained from bladder irrigations was not permanent. When patient came under observation of the writer (October, 1925), she was voiding about every forty minutes with much local distress, and her urine was loaded with pus. Cystoscopic examination of the entire urinary tract on both sides demonstrated a normal right kidney and a tuberculous left kidney. Nephrectomy was done shortly thereafter.

Primary diagnosis: Cystitis, cause unknown.

Correct diagnosis: Tuberculosis of left kidney.

Though the commoner causes of vesical disturbance, with or without pyuria, are relatively few, the possible causes are so numerous that no attempt whatsoever has been made in this paper to catalogue them with any pretense of completeness. Unless this fact is emphasized, the obvious omissions in the number of those specifically mentioned may occasion some comment. The object of the writer, however, has not been the comprehensive consideration of the etiologic, pathologic, and therapeutic aspects of bladder inflammations and irritations; on the contrary, he has touched here and there just sufficiently to accomplish—or to hope to accomplish—his real purpose, namely, the reduction of this manifestation of disturbed physiology to its proper perspective in the estimation of any clinical picture in which it may appear. In conclusion, therefore, he reverts to the title with which he introduced the discussion.

Cystitis is a symptom. To exalt it to the dignity of a disease will very occasionally express the truth but more often will lead to disaster and sometimes death. In the apt words of Caulk, a thorough and capable observer:

"The diagnosis of cystitis is frequently based upon its symptoms, namely: frequency, pain, and pus in the urine. These, however, are entirely insufficient, and this superficial diagnosis is reponsible for many of the destructive kidney lesions. I know of no other term in urology which is more abused than the much overworked cystitis. It must be repeated that infected urines do not represent cystitis until infections of the other genito-urinary organs have been ruled out by a thorough and scientific investigation. With our present up-to-date facilities for arriving at a prompt, clean-cut, accurate diagnosis of urinary disease, it seems nothing less than a crime that so many individuals are subjected to blind therapy."

NOTES UPON CERTAIN BORDERLANDS OF PATHOLOGY.*

By JOHN W. PRESTON, M. D., Roanoke, Va.

It has been said[1] that medicine in the middle of the last century was dominated by structural pathology; in the last quarter of the century by bacteriology; and in the present day by the body functions and by chemistry.

To properly evaluate these milestones of progress is difficult for one in active practice. They are typical of the divergent views alike of different periods, and of workers in different fields of medicine.

The surgeon, having to do mainly with structures and gross pathology, tends to grow into the attitude of mind that ignores function and perhaps undervalues the multiform subtle agencies other than gross, or even cellular tissue changes, which mark the line between health and sickness.

On the other hand, it is a matter of not infrequent observation that the man who does no surgery, who has the mental and subjective symptoms constantly borne in upon him, is too prone to place undue dependence upon Nature's recuperative processes and, by an over-confidence in such powers, allow function to pass into pathology.

Between these viewpoints there lies a twilight zone, a sort of *terra incognita*, peopled by flickering will-o-the-wisps and fleeing phantoms, which is as yet but too little charted. It is my purpose to discuss briefly a few of these.

To illustrate: He who has made a diagnosis of hysteria in early stages of brain tumor, and watched it develop till signs are typical, or,

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1. Henry A. Christian, Oxford Medicine, Vol. 1, Page 5.

conversely, has made a diagnosis of brain tumor in a case of hysteria, needs no reminder to exercise all his diagnostic skill and acumen when a similar case again presents itself, the one grossly pathological, the other as we still conceive it purely functional, yet each in its incipiency with certain symptoms in common with the other.

Of a similar type is the functional vomiting of pregnancy, as relates to the vomiting of a pregnant woman incident to structural changes in the liver or kidney.

In coming to consider the disorders which may properly be classed as borderline, one is impressed with the long list of these which within the past two decades have through better means of study taken their places among those of definite diagnosis and known pathology.

In this latter category fall certain types of cardiac disorders, which have yielded to graphic methods of study; the differentiation of the early stages of exophthalmic goitre from functional neurosis and tuberculosis, by the aid of metabolic estimations; the diagnosis of doubtful cases of syphilis through serum reactions; the differentiation of inflammatory from non-inflammatory processes by blood counts; of diabetic conditions by blood sugar estimations; of comas by blood-urea examinations; blood stream infections by blood cultures; and, finally, the indispensable aid of the X-ray in the differentiation of function from pathology in the gastro-intestinal tract.

But what of the yet unsolved borderland disturbances that vex us? Among the foremost is that of colloid and adenomatous goitre. Who among us fails to recall cases of goitre, lasting an ordinary lifetime, with apparently no symptoms? Yet over against these is the type of case, falling within the confines of this paper, which goes on for years with an occasional slight attack of cardiac irritability, a nervous upset now and then, periods of general weakness, yet carrying on, with now a slightly increased metabolic rate, again a normal rate, and yet again a subnormal rate. At least one such case I have personally seen suddenly flare up as an unsafe surgical risk and die toxic.

Yet another case is that of a man, now aged sixty-three, whose very slightly enlarged thyroid I have had an opportunity to watch over a space of some ten years, during which time there were periods of apparent normal health, alternated with those of cardiac disturbance, mental and emotional stresses of mild character, none of which were sufficiently definite in the earlier stages to warrant a positive diagnosis. The removal of the thyroid two years ago resulted in a complete restoration of health.

The point in all this is the speculation as to where the borderline of health exists in the average case of enlarged thyroid in which no outspoken symptoms are manifest, and how correct is the doctrine of those who hold that every goitre case passing the age of forty should have the gland enucleated; and, on the other hand, whether medical men are doing their full share in searching out and treating the underlying causes when the increasing size of the gland is first noted. I here hazard the opinion that there are more such cases at the present moment than we commonly believe.

In the matter of focal infections, there is now no argument as to those that are outspoken, yet the teeth, tonsils, sinuses and gall-bladder still present borderline problems of magnitude. A case in point is the not infrequent disturbance in the gall-bladder region following systemic infections, such, for instance, as were common during the mild epidemic of influenza last spring; likewise, certain other not uncommon digestive disturbances, with or without a moderate amount of tenderness in the right hypochondrium. The decision under these conditions as to whether the gall-bladder be the primary or secondary focus of infection is no easy task, for, even with the viscus exposed, the surgeon is perplexed as to exactly the type that requires removal. The present indications are that the liver and its accessories are again about to claim their pristine glory as a chief among organs, and it may, indeed, be that it is subject to more functional disturbances than pathologists have thus far demonstrated. Whether the various functional tests now in the stage of development will place our feet on firmer ground is a hopeful, and one may say promising, speculation; yet, let it be clearly understood, this is no plea for a reversion to the drastic calomel days of the past.

The question of blood pressure readings is of perennial interest. Of its own right its varia-

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tions are not disease, yet the intricacies of the problem are so deep it seems exceedingly difficult for medical men to get away from the firmly rooted idea that a low pressure must for its own sake be raised, and that a high pressure must be lowered.

The particular observation which I wish to make in reference to blood pressures is that, in my own routine work, I find the readings in apparently normal individuals somewhat lower upon the average than those usually accepted as normal. Indeed, I oftener find the systolics below 110 than above 115 and diastolics oftener below 70 than above. That the majority of these observations are made upon indoor workers may account for the discrepancy.

What of the underlying causes of constant blood pressures above 150 systolic with a diastolic of 90 or 100? Is the threshold of pathology being reached with these figures? In this a vast field for research is opened up, and it is assuredly here that we are today missing a great opportunity for accomplishment of real good through ignorance of the cause of at least one type of high blood pressure, that of essential hypertension.

In the consideration of borderland conditions, having to do with dysfunctioning of the endocrines, individually and collectively, such a maze of unproven theories are presented, I shall merely mention them as relates in a causative way to the condition of obesity, which latter, indeed, is exceedingly difficult to class as between health and disease.

Whether the obese individual may owe his avoirdupois to heredity, over-eating, habits of ease and luxury, which includes the automobile, or to disordered endocrines, is but too often a speculation; but, however it may be, it is a startling fact that one seldom sees an over-nourished individual reach the age of seventy, the majority of these, in fact, dying before the age of sixty-five, if my observations be correct. The two systems which suffer most in carrying the adipose load may truthfully be said to be those of the circulation, and those having to do with carbohydrate metabolism, yet of all these it is a matter of common observation that the end usually comes in a circulatory catastrophe.

In the above connection, I have already spoken of instrumental aid of cardiac diagnosis, yet what of the patient who has been subjected to the most careful tests with negative results and suddenly dies of cardiac thrombosis?—a condition comparable to that of the individual whose symptoms are diagnostic of cerebral arteriosclerosis, yet whose eye grounds are normal, and whose blood pressure is normal. These are alike borderland conditions which impress upon us the fact that, however much help may be obtained from accessories, the court of last resort in these diagnoses is the utilization of one's faculties of observation and his fund of experience.

There is yet another class who are not sick, neither are they in good health. I refer to the loosely jointed spare individual of soft muscle and unstable nerves, the class who, either from a low pain threshold or other intangible cause, magnify their ills, which run the gamut from the typical psychasthenic, through circulatory asthenia, to gastric or genital neuroses. This class really suffers much more than they are credited, and inflict real mental torture upon the practitioner who attempts to treat them, yet whose stabilizing guidance they sorely need.

Outspoken patients of the class here mentioned are easily recognized, but grading between them and well-balanced individuals is a large class who are perhaps just a little queer, but who stand ready to break when a strain comes to which their low resistance is unequal.

As relates to this latter in particular, may I not here focus attention upon an unprecedented biological experiment at this moment in progress, that of the ultimate result of nicotine poison upon the progeny of the future American mother.

In conclusion, it would seem that we would do well to now take stock and appraise the importance of the more obvious borderland conditions, such as above mentioned, and, when fully recognized, devote ourselves more assiduously to an investigation of the underlying causes and to their prevention as well as cure.

To be specific, I would direct attention—

First: To maintaining the present interest of the public in prevention of adolescent goitre and, this period passed, to the more careful study of the borderland conditions underlying the types of goitre which develop in later life.

Second: A better appraisal of the etiological factors having to do with over-nutrition,

particularly as applies to lack of exercise incident to the automobile, and the growing habit of over-feeding.

Third: The earlier recognition of types of asthenia and the training of parents relative to the importance of the conservation of the nervous system of the growing child.

Fourth: The recognition of the fact that between fair health and maximum health there is a borderland, and that the full attainment of good health is dependent upon the wise counsel of the physician, as well as upon his medical ministrations.

OBSERVATIONS ON CARDIAC PAIN.*

By J. MORRISON HUTCHESON, M. D., Richmond, Va.

Among the several manifestations of heart disease, none has received greater attention than pain. So impressive has this single symptom been that for a century and a half angina pectoris has been regarded as a distinct cardiac affection whose diagnosis, prognosis and treatment rests largely if not entirely upon the character of the pain produced. In fact, the term angina has been so amplified and subdivided as to include a large group of allied terms, of which pseudo-angina, false angina, vasomotor angina and angina *sine dolore* are but a few examples, all designed to indicate the condition of the patient as determined by the particular kind of pain he has.

As knowledge has advanced concerning pathological changes in the heart in their relation to symptoms and as new methods for their detection have been discovered, it has been gradually realized that such classifications with their implied meaning are superficial and inadequate. Their habitual use leads to looseness and inaccuracy in diagnosis, unnecessarily alarming prognosis, and useless or harmful therapy, and at the same time violates the important principle of thinking in terms of pathology. Pain as a sign of heart disease is of great importance, but a clearer idea of a patient's prospects and needs is to be had from a conception of the kind of heart that produces the pain than from the character, distribution and degree of the pain itself.

Much has been written in the attempt to explain the mechanism by which cardiac pain is produced, and "no less than eighty hypotheses have been collected on this subject" (Levy). The idea of coronary disease, which originated with Jenner, the hypothesis of tension in the first portion of the aorta advanced by Allbutt, and the view held by MacKenzie that pain is an expression of myocardial exhaustion, are all worthy of earnest consideration, yet the facts oppose accepting any one of these conditions or any other anatomical or physiological disturbance yet discovered as the origin of all cardiac pain.

The peculiar character and distribution of cardiac pain is perhaps more easily understood than the manner of its initiation. It is well known that the nerve supply to the heart comes from the autonomic system and that it has no sensation as do structures supplied by the cerebrospinal nerves. The heart, like the stomach, can be cut or handled without producing pain, but violent contractions of the stomach or bowels do cause pain, but often in a different locality from the contracting muscle. In the embryonic vertebrates the spinal nerves are distributed to corresponding segments of the trunk, but as the limbs grow out they carry with them portions of the nerve trunks, so that the original nerve distribution is greatly changed in the relation of certain regions to cord segments.

It is also clear that stimulation of a sensory nerve at any point in its course affects the brain in the same manner as stimulation of the organ supplied by the nerve, and the resulting sensation is that of disturbance in the organ itself. When stimuli originate in the heart, they are carried to the spinal cord through the sympathetic by way of the cervical ganglia, but on reaching the cord are diffused to neighboring nerve cells. These respond to the stimuli in accordance with their special function, sensory nerves causing in the brain a sensation of pain in the locality they supply and motor nerves causing a contraction of their muscles. This conception of the nature of cardiac pain (MacKenzie and Head) is quite consistent with facts and has received support not only from the results obtained from the operation of sympathectomy, but also from certain phenomena observed during this operation.

From the clinical standpoint, patients with pain referable to the heart might be placed in three groups: (1) those with classical angina; (2) those with the picture of acute coronary

*Read before the Southside Virginia Medical Association, June 8, 1926.

thrombosis; (3) those with atypical pain the origin and significance of which must be determined by other features in the history and examination.

The first group is easily recognized from the description of the attack given by the patient, —precordial or substernal pain with a tendency to involve a shoulder and arm, usually the left, constriction, suffocation, sweating, a sense of impending death. These symptoms, induced by exertion, emotion or over-eating and relieved by rest, give a picture that is not often misinterpreted. But a diagnosis of angina is no more than the recognition of a symptom-complex of probably grave heart disease including an uncertain prognosis and the likelihood of sudden death. Some patients may survive repeated attacks for twenty years, as did John Hunter, while others succumb to the first seizure. To distinguish the rapidly fatal case from one with many years of useful life is at times a difficult task but one that should be undertaken.

Death in the majority of patients who have angina results from congestive heart failure, the attacks often ceasing with the advent of broken compensation. Most of those dying in an attack show acute coronary thrombosis. Seventy-five per cent of autopsies on patients with angina reveal either coronary obstruction or aortitis or both (Cabot). It is evident, then, that the prospects of the individual patient, so far as life is concerned, depend upon the likelihood of gradual myocardial failure or sudden coronary obstruction, and predictions as to his future are to be based upon the condition of his heart muscle and particularly his coronaries rather than upon the fact that he has angina.

When an attack of angina is prolonged for hours and not relieved by rest, nitrites or even morphine, it is probably due to plugging of a main coronary or one of its branches. The pain in this condition is substernal or epigastric, is accompanied by vomiting, shock and collapse, and, as there is usually fever and leucocytosis, it may be easily mistaken for acute disease below the diaphragm. Though death commonly attributed to "acute indigestion" is a frequent outcome of such an attack, a considerable number of patients survive and may, through a good collateral circulation, regain a fair degree of myocardial efficiency. It is important that the signs of coronary thrombosis be appreciated in order not only that useless and dangerous abdominal operation be avoided, but also that every protection be given the heart through the critical period of damaged coronary circulation. Unlike angina, the attack is usually accompanied by definite cardiac signs, such as rapidity, arrhythmia, weak first sound, falling blood pressure or, when infarction occurs on the anterior wall, an evanescent pericardial friction.

A business man of 66 consulted me in August, 1920. For two weeks he had been having typical angina but not severe enough to require treatment. Examination showed a rather large heart, normal blood pressure, definite sclerosis of peripheral and retinal vessels, and changes in the electrocardiogram indicating coronary narrowing. In November, 1920, he was seen in an attack of terrific substernal pain lasting thirty-six hours and requiring frequent hypodermics of morphine which gave little relief. The heart was fibrillating and the blood pressure was much lower than had been previously recorded. He recovered from this attack, and normal rhythm returned, but his cardiac reserve was greatly diminshed and the electrocardiograph signs of coronary disease persisted. In November, 1924, he succumbed to an attack identical in character with the one previously described. This was undoubtedly a case of coronary sclerosis with occlusion, which was survived for four years to be followed by another with fatal result.

Pain of such a character as to suggest a cardiac basis is a very common complaint. It may be precordial, substernal, epigastric, or in the arm alone; it may be the principal trouble for which advice is sought, or appear casually in the history as the result of questioning. It may be mild or severe, the degree having no relation to the gravity of the underlying disease; it may occur alone or accompanied by a variety of other symptoms of greater or less significance. "One should make a careful analysis of the characteristics and nature of the pain present. This initial procedure will orient the investigation *a priori* in some particular direction, but, however searching the analysis may have been, it will never lead to a sound diagnosis which can only be established by an objective examination of the patient" (Martinet). The paucity of obvious physical signs

in many patients with precordial pain is proverbial. Investigation must, therefore, be carried out with the greatest care and thoroughness with particular search for evidence of those lesions with which pain is known to be commonly associated. A review of all the clinical conditions with which precordial pain might possibly be associated would be time-consuming and unprofitable, but, so far as the heart is concerned, the vast majority of cases occur in a few disorders.

Any patient with failing myocardium, from whatever cause, may have pain, though, as a rule, it is not a prominent symptom. It is usually a dull discomfort, more or less constant, accompanied by precordial hyperalgesia, and increased by exertion. It is often alleviated by improved compensation.

A considerable number of patients with precordial pain, even at times conforming to the angina type, have to be classified as cardiac neuroses or neuro-circulatory asthenia. They are usually young individuals and are recognized by the presence of other manifestations obviously neuropathic, and the absence of signs of heart disease. Their pain, like their palpitation, appears to be an expression of an oversensitive nervous system.

It has seemed to me that the pain of coronary disease is apt to be epigastric or under the ensiform cartilage and accompanied by a sensation of pressure which is relieved by belching or by soda. It is often affected more by eating than by exercise, and the patient almost invariably looks upon it as indigestion. This is the type in which gall-bladder disease is suspected and in which surgical treatment to the abdomen may be unwisely applied. I have observed five such cases in which operation had been advised, two in which operation was done with fatal results, and one who survived a laparotomy with gall-bladder exploration to die some months later from cardiac failure following infarction. As a matter of fact, coronary disease and gall-stones may coexist, as both conditions are common in elderly people, and the problem of management in such cases is by no means an easy one.

Aortitis, either syphilitic or arteriosclerotic, is frequently accompanied by pain which is apparently produced in the same way as in coronary disease. Where syphilis is demonstrated or where hypertension is present, changes in the aorta may be suspected, but the nature and extent of these changes can only be made out by direct examination.

Tobacco has been credited with producing a variety of cardiac disturbances, but the terms "tobacco heart" and "tobacco angina" are not so frequently seen now as formerly. I have had a few patients in whom tobacco was undoubtedly an exciting cause of pain, but whether it acted primarily or upon a heart already diseased has not been determined to my entire satisfaction.

Broadly speaking, pain, as a prominent symptom, is common in arteriosclerosis and syphilitic heart disease, uncommon in rheumatic disease and other infections except where the condition has progressed to cardiac insufficiency. Arteriosclerosis is most apt to involve the coronaries, syphilis the aorta, but not infrequently it is impossible to differentiate disease in the two localities.

In studying the aorta the fluoroscope is of inestimable advantage and should be employed whenever possible as it will bring to light deformities impossible of detection by other means. When evidence of possible coronary disease is sought, the electrocardiogram is invaluable. Though some aspects of this method of examination are still under discussion, it is safe to state that the electrocardiograph gives the best objective information obtainable as to the presence or absence of disease in the myocardium.

Cardiac pain often requires special treatment in addition to that applied to the underlying disease. In certain instances a careful analysis of the history, with modification of the special circumstances that act as exciting causes, brings relief. The iodides in syphilitic aortitis, the nitrites and morphine are well known. I have found erythrol tetranitrate useful and have gotten the impression that it is superior to the other similar preparations, especially as regards the duration of its action. Theobromin, probably through its effect on the coronaries, is often quite helpful both in relieving pain and preventing its recurrence.

In recent years, a good deal has been said about the operation of sympathectomy for the relief of cardiac pain. This operation attempts to sever the sympathetic connections between the heart and spinal cord, thus preventing impulses arising in the heart from reaching the

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cerebrospinal system and causing pain. Obviously, it cannot influence primary cardiac pathology to the extent of preventing myocardial failure or coronary occlusion, and must be looked upon as a symptomatic measure. There are certain patients whose pain is a most distressing and disabling symptom and whose prospects for life otherwise are good. In these patients I believe the operation to be indicated. It contributes little to the danger of the disease, and my experience with it convinces me that it may be of tremendous advantage in properly selected cases, as it not only relieves pain, but by doing this it indirectly prolongs life. It would be unfortunate, however, for this procedure to be applied indiscriminately to cases of angina, in most of whom it is, to say the least, unnecessary.

A railroad official of 51 was first seen in November, 1921. He complained of shortness of breath on exertion and slight precordial pain which occurred on exercise and radiated to the left arm. Nothing abnormal was made out on examination, and by moderate restriction in exercise and diet he remained reasonably comfortable until the fall of 1924, when his pain became more frequent and more severe. Nitrites gave only relative relief, and a month's vacation with almost complete rest was of little benefit. In March, 1925, the pain was so troublesome as to compel him to give up his work. No evidence of grave cardiac pathology being discovered, sympathectomy was advised and done by Dr. Coleman on April 21st. Ten days later, he went to work and has since been entirely free from pain. There has been frequent tightness in the chest and a sensation of gastric distention, both of which are relieved by nitrites, but no discomfort has occurred sufficient to interfere with his regular duties.

In this rather sketchy discussion, an attempt has been made to discourage the use of the term angina pectoris as meaning any particular variety of cardiac disease. By careful analysis of each history and the application of appropriate means for detecting the cardio-vascular pathology with which pain is associated, it is believed that a greater degree of precision in prognosis and treatment will be reached.

209 *Professional Building.*

PARALYSIS OF THE LEFT RECURRENT LARYNGEAL NERVE IN ASSOCIATION WITH MITRAL STENOSIS.

By E. U. WALLERSTEIN, M. D., Richmond, Va.

Mrs. L. C., white, female, age 25, married, was first seen at the Tuberculosis Dispensary of the Richmond Bureau of Health in November, 1924. The history is as follows:

C. C.—Hoarseness.

P. I.—No cough, no hemoptysis, no night sweats, no loss of weight. In 1918, had severe attack of influenza and suddenly became hoarse. The condition of the voice has remained the same since this time. No pain, no difficulty in swallowing. At this time she was told that she had heart trouble, and strychnine was prescribed. Since this, she has had dyspnea on moderate exertion, no orthopnea.

P. H.—Ear, nose and throat negative except for tonsillectomy done in September, 1920, for relief of hoarseness.

Dr. Ezekiel examined the patient at the dispensary and reported no evidence of tuberculosis, but a diagnosis of mitral disease was made.

Examination of Larynx.—The voice is very husky. The left vocal cord is fixed in the cadaveric position. There is compensatory overaction of the right cord during phonation.

X-ray examination of chest was negative for tuberculosis. Sputum negative for tuberculosis. Blood Wassermann negative.

The patient was referred for electrocardiographic study to Dr. M. Hutcheson, who reported as follows:

"Tall, thin woman, 20 per cent below standard weight. Lips and finger tips show tinge of cyanosis. Breathing free when lying flat.

"Pulse regular, 68 to minute. Blood pressure 95/58. Venous pressure, right arm, 16 m.m. water; left arm, 20 m.m.

"Vital capacity. 2,100 c.c.

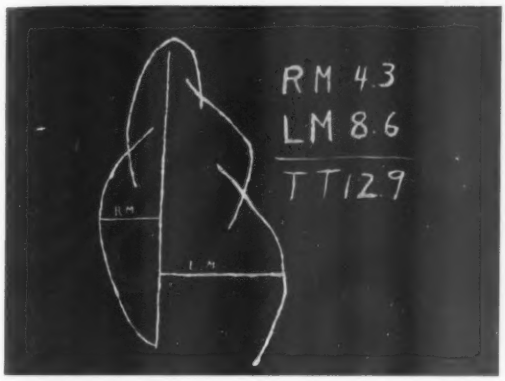
"Apex felt in fifth interspace. Left border 9 c.m. and right border 3 c.m. from mid-sternal line. Above and to the right of the apex a distinct thrill is palpable, apparently diastolic in time. Over the entire precordium a rough systolic murmur is audible, and at the third left interspace a fairly loud late diastolic crescendo in character. There is moderate accentuation of the pulmonic second sound.

"Lungs negative.

"Abdomen negative.

"No edema of lower extremities.

"Impression: Mitral stenosis (rheumatic). Compensation doubtful."



Orthodiagram of the Heart.

Electrocardiogram shows right ventricular preponderance. Q. R. S. complexes are normal. P-wave slightly flattened in Leads ii and iii. Conduction time .18 second. T-wave upright in all three Leads. Rhythm normal throughout.

X-ray examination of heart and aorta showed measurements of the heart to be as follows: R. M.—4.3 c.m.; L. M.—8.6 c.m. T. T.—12.9 c.m. Normal T.T. for patient weighing 124 lbs.—12.3 c.m. Increase in present case —.6 c.m. In the region of the left auricle there is an extremely marked prominence in the heart silhouette. This prominence is greater than we have ever seen in a case of auricular enlargement. Aortic shadow normal, shape of heart normal except for the auricular prominence.

Conclusions—According to the measurements, there is no appreciable increase in the width of the heart shadow. The prominence of the left auricle is extremely marked and is typical of the findings to be expected in a mitral stenosis.

The patient has been examined at approximately monthly intervals since coming under my observation. There has been no change either in the laryngeal or cardiac condition.

Paralysis of the recurrent laryngeal nerve is a fairly common finding, and is usually due to pressure caused by aortic aneurysm, mediastinal growth, goitre, etc. However, paralysis associated with mitral stenosis is very rare.

Ortner[1], in 1897, was the first to describe the condition. He reported two cases studied at autopsy. Up to January, 1924, Notkin[2] in a review of the literature, was able to find only 74 cases reported.

There is a diversity of opinion as to the exact mechanism of the paralysis. According to the most widely held view, the enlarged left auricle causes pressure on the left recurrent laryngeal nerve, producing either neuritis or atrophy.

Quoting Garland and White,[3] "Ortner believed it was compression of the nerve against the aortic arch by the big left ventricle; Kraus held it to be elongation of the nerve resulting from right ventricular dilatation; Alexander, and later Fetterolf and Norris, claimed that dilatation of the left auricle acts by crowding back the pulmonary artery, which is often dilated."

Notkin advances what would appear to the writer as the most tenable explanation. He holds that the enlarged pulmonary artery, through its own dilatation or through pressure transmitted to it by the left auricle and pulmonary vein, compresses the nerve against the aorta or ductus arteriosus.

Secondary factors may enter by increasing the rigidity of the opposing parts, such as thrombus in the auricle, thrombosis of the pulmonary artery and sclerosis of the pulmonary artery and aorta.

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114 *North Fifth Street.*

REPORT ON YEAR'S WORK IN ENDOSCOPY, UNIVERSITY VIRGINIA HOSPITAL.*

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Department of Otolaryngology, University of Virginia.

Since "endoscopy" has now come to occupy such an important position in the diagnosis and treatment of certain diseases, we have felt justified in presenting a resume of the past year's work at the University Hospital, in order to acquaint you with the scope, application and problems of this particular subject.

To Dr. Chevalier Jackson all honor is due for the development and advancement of endoscopy, and to him and his clinical associates for the dissemination of knowledge whereby

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others in all parts of the world are able to carry on the work.

There are certain prerequisites which must be fulfilled to perform endoscopy successfully. Among the most important of these are: adequate equipment and training, constant practice, and teamwork on the part of the operator and his assistants.

This paper will deal briefly with the types of cases, so treated, in order to familiarize you with its scope, the problems and results of treatment, and the report of certain cases of particular interest.

Group I.

Abscess Retropharyngeal.—We have found the laryngoscope of great value in the treatment of this condition, and feel that it should always be the procedure of choice, because the patient's head being placed well down over the table end, inspection of the pharyngeal wall can be carried out and the site for incision chosen in a leisurely manner; also the suction tube can be inserted directly into the abscess cavity, all of which minimizes the well recognized dangers in the treatment of this condition.

Case 1. No. 55320.—E. N. T., baby, seven months of age, was treated in this manner and 28 c.c. of pus aspirated. Recovery was rapid and uneventful.

Case 2. No. 50944.—M., adult, fifty-nine years, a diabetic, extremely septic and semiconscious, with a very large abscess; 175 c.c. of pus was aspirated. This patient improved markedly for a time, but died six weeks later of a mediastinitis.

Group II.

Abscess Laryngeal.—Here again the laryngoscope furnishes us an opportunity to study the larynx and open the abscess directly, wherever it may be,—a procedure that will appeal to all who have attempted to incise them indirectly.

Case 1. No. 55520.—E. N. T., adult, sixty-three years of age. An abscess presenting just above the left cord, with some fixation of the left arytenoid, was incised directly. The larynx was perfectly normal in three weeks' time.

Case 2. No. 54833.—E. N. T., adult, fifty years of age, gave a history of recurrent attacks of hoarseness for the past six months, but lately some soreness in neck and dysphagia. Mirror examination showed a large inflammatory looking mass protruding from the right ventricle, overhanging the cord, about 1 by 1½ cm. in size, and with complete fixation of the arytenoid.

The Wassermann was negative, so, at the time the abscess was incised, a biopsy was done, which ruled out malignancy.

This case illustrates the added advantage of being able to remove tissue for microscopic examination at the same time.

Laryngeal Stenosis.—Under this heading we wish to mention three cases, two of which were due to a post-operative paralysis of both recurrent laryngeal nerves following thyroidectomy. This is a particularly tragic condition, and, as a rule, is not due to faulty technic on the surgeon's part, but to some unknown mechanism, as contracting scar tissue, or what not.

It goes without saying that all goiter patients should have a preliminary indirect laryngeal examination, and if there is a paralysis of either cord, the surgeon will be forewarned.

One of these patients died before an emergency tracheotomy or intubation could be done. The other is still living at the end of twelve months, having refused operation. But we feel that death is always imminent in these cases.

Whenever this condition ensues, a tracheotomy should be done as a precautionary measure, then, if at the end of one year, there has been no return of function, anastomosis of the recurrent stump with the descendens hypoglossi can be attempted after the method of Frazier. Direct ventriculocordectomy is reserved as a last resort.

We also wish to mention our experience with direct intubation in a year old infant who developed laryngeal diphtheria, necessitating intubation. We used the Mosher direct intubation forceps, but found it impossible to disengage the obturator without withdrawing the intubation tube.

In anticipation of some such difficulty, we asked Dr. Royster to stand by with the indirect instrument, and he quickly and successfully introduced the tube after our failure.

Direct intubation cannot supplant the O'Dwyer technic, which can be very quickly done under most conditions. However in hospitals where time is not essential, the direct technic does allow inspection, and aspiration,

and, with a suitable instrument, can be readily performed.

Laryngoscopy.—Direct laryngoscopy is particularly valuable in the examination of infants and young children, as well as those adults in whom mirror examination is unsatisfactory; also, tissue for biopsy is readily obtained, and minor operative procedures are made possible.

We wish to mention the following cases in illustration:

Case 1. No. 55652.—E. N. T., sixty years of age, with advanced pulmonary tuberculosis, and aphonia for one year. The picture obtained by mirror examination of the larynx was that of carcinoma rather than tuberculosis. His Wassermann was negative. We did a direct biopsy, which showed carcinoma with ulceration and secondary infection. This was an instance in which the complete diagnosis could not have been made without biopsy. Mention should be made of two other cases, in which one presented a simple papilloma, and the other, an adult, who had a traumatic left recurrent paralysis and a questionable laryngeal perichondritis. Mirror examination was unsatisfactory, but direct laryngoscopy revealed the absence of perichondritis.

Tracheal Stenosis.—Under this heading, we wish to report two cases of unusual interest from Dr. Royster's service.

Case 1. Autopsy No. 628.—P. S., four years old, was admitted to the hospital in a moribund condition, and died while tracheotomy was being performed to relieve asphyxia. One year previous to admission, the patient swallowed lye, and had had some difficulty in swallowing since that time.

Twenty-four hours before admission, the child suddenly developed signs of asphyxia after swallowing some rather large pieces of meat. Had been cyanotic, dyspnoeic, and growing gradually weaker until admission. Permission for special autopsy was granted to examine trachea and esophagus. The findings were as follows: a rather fibrous stricture of the upper esophagus was found, with a large dilated pouch above, packed with food. This tumor mass was sufficiently large to so compress the trachea as to cause asphyxia.

Case 2. No. 54555.—P., an infant five days old, admitted to the Hospital with a history of dyspnoea since birth, cyanosis at times, and several convulsions on the second day.

Examination was negative except for an extremely large thyroid gland, and likewise thymus.

Tracheotomy was considered imminent, but following the first Roentgen Ray treatment, the thyroid diminished in size so rapidly that dyspnoea and cyanosis were practically entirely relieved by the end of the first week.

The following measurements will be of interest to illustrate the size of the neck: circumference of head 38 c.m., neck 29 c.m., chest 34 c.m., abdomen 33 c.m.

Lung Suppuration.—The treatment of this unfortunate condition is one which requires the closest co-operation of the internist, surgeon and bronchoscopist, to properly classify and decide which type of treatment is indicated for each particular case.

Bronchoscopy will materially shorten convalescence and cure a certain number of these cases; in others, the information obtained and the localization by pneumonography will be of great help to the surgeon. For this purpose bismuth subcarbonate and lipiodol is used.

Case 1. No. 51130—S., a man fifty-six years of age, developed a left lower lobe abscess following an operation for a perforated duodenal ulcer. This patient was bronchoscoped at weekly intervals, being greatly benefited each time. He was discharged nine months ago, and, in a recent communication, states that he is perfectly well and has been free of all symptoms for the past eight months.

In two other patients, we were able to alleviate the symptoms to a certain extent, but, since their condition was essentially surgical, they were transferred to the Surgical Department for operation.

One other case, which was clearly surgical, was only bronchoscoped once for the purpose of obtaining additional information.

Two of these cases were post-pneumonic, and the other followed ether tonsillectomy.

Bronchoscopy Diagnostic.—The bronchoscope furnishes an additional aid in securing data in obscure pulmonary conditions. It is a procedure carried out always under local anesthesia and attended by very little discomfort on the part of the patient. Hence, these patients should always be given the benefit of a diagnostic bronchoscopy. We have been able to render a diagnosis more certain in several cases, referred to us for this examination.

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GROUP III.

Oesophageal Stricture.—A particularly distressing condition occurring most often in children as a result of swallowing commercial lye.

These cases should always receive the most careful attention of the endoscopist, for blind bouginage will invariably result in death. We are indebted to Dr. Gabriel Tucker for the treatment of these cases, by his very successful method of retrograde string bouginage.

We have already mentioned one case resulting in death, but wish to add three others whose progress has been most happy.

Case 1. No. 28076.—S., seven years old, who has been fed through a gastrostomy for three years, had a complete, impervious, three inch stricture of his esophagus, as a result of swallowing lye.

This patient was referred to Dr. Jackson's Clinic, and Drs. Clerf and Tucker, under combined peroral and retrograde esophagoscopy, and with the aid of the fluoroscope, successfully permeated the stricture and passed a string twelve months ago.

This patient was thereafter returned to us, and has been undergoing retrograde bouginage since that time, until now the 28 F. bougie passes readily. His condition has rapidly improved, having gained ten pounds, and grown one inch in the past year, and takes all of his food by mouth.

Case 2.—R. H., age four years. Also a lye burn stricture, having been fed through a gastrostomy for the past two years.

By retrograde esophagoscopy a string was passed ten months ago, and under subsequent retrograde bouginage, his condition has rapidly improved until at present his weight is normal, and he is taking all of his food by mouth.

The third case is that of a negro child, five years of age, who has a partial stricture, a result of swallowing lye, with only slight pouching. She has never needed a gastrostomy, and with occasional peroral esophagoscopic bouginage, she is able to eat in a normal manner.

Oesophageal Stenosis.—Under this heading we wish to mention one case of advanced phreno-spasm with marked esophageal pouching and complete obstruction, whose condition necessitated gastrostomy, to relieve starvation and dehydration, before esophageal dilatation could be undertaken.

Oesophagoscopy Diagnostic.—Here again the esophagoscope will furnish valuable information in all obscure esophageal conditions, and by biopsy we can obtain tissue from any location for microscopic diagnosis.

This procedure has been used on a number of cases, among which were syphilis of the esophagus, carcinoma, and several cases of suspected foreign body or tumor. As in bronchoscopy, it is a procedure attended with very little discomfort even though no anesthesia is used.

GROUP IV.

Foreign Bodies.—We wish to report our experiences with six foreign body cases which have come to us in the past year. Cases I and III have been previously reported in the VIRGINIA MEDICAL MONTHLY, but we wish to include them here again in the complete report for the year ending May, 1926. We feel particularly happy that all six of these cases terminated successfully.

Foreign Body in Larynx.—Case 1. No. 50835. —Patient, a colored boy three years of age, who, forty-eight hours previous to admission, while eating beans and meat with crushed bone in it, became strangled and apparently aspirated some of the food.

On admission, patient could not speak above a whisper. Respirations were wheezing in character, and there was marked inspiratory and expiratory dyspnoea, accompanied by in-

drawing of the suprasternal notch, supraclavicular and intercostal spaces. Coarse and sibilant rales were heard throughout both lungs, and resonance was slightly impaired.

X-ray examination showed a shadow of increased density in the laryngeal region, thought to be the larynx. Direct laryngoscopy showed a foreign body in the subglottic space

in an antero-posterior position, with some bleeding from the laryngeal mucosa.

The foreign body was grasped during inspiration with alligator forceps, and removed.

Examination showed an irregular flat piece of bone with serrated edges, about 1 c.m. in diameter.

All symptoms rapidly subsided after extraction, and patient was discharged in three days in good condition.

Foreign Body.—Piece of ham bone.

Foreign Body Right Bronchus.—Case 2. No. 54171.—E. N. T., white boy, six years of age, a deaf mute, found choking in bed by father. A number of grains of corn were noted in the bed, and aspiration of one of these was suspected. Patient admitted to Hospital eight hours later, with a history of several attacks of cyanosis during this time.

Examination showed marked dyspnoea with wheezing, less marked when quiet. X-ray examination was negative, but, on physical examination, Dr. Wood reported respiratory movements less on right side, diminished breath sounds over right lower lobe, and markedly so over right middle lobe, with a compensatory increase on the left. Fine moist rales were noted over both lungs. Diagnosis: obstruction right lower bronchus.

Bronchoscopy with 5 m.m. tube revealed a profuse mucilaginous secretion with considerable oedema and redness of the mucosa. The foreign body was first noted in right main bronchus, but coughing dislocated it, and it began to range from trachea to right bronchus. On two occasions when in trachea, it produced a complete obstruction, cyanosis became marked, before it could be pushed back into the bronchus. All attempts to grasp it with the side-curved forceps proved futile, due to movement and profuse secretion present. The bronchoscope was slowly withdrawn and the foreign body followed at each cough until the upper trachea was reached. The corn remained at this point, so the bronchoscope was withdrawn and the laryngoscope inserted. On inspiration the corn was grasped with alligator forceps and withdrawn. Shortly after return to ward, an interstitial emphysema appeared, gradually spreading until it involved the neck and lower chest wall,—a condition probably due to a vesicular rupture.

His condition remained good for eighteen hours; then the dyspnoea became so marked, and the mucilaginous secretion so profuse, a local tracheotomy was done. After this, his condition rapidly cleared up, and patient was discharged on the twenty-fourth day, perfectly well.

Foreign Body.—Grain of corn.

Foreign Body Oesophagus.—Case 3. No. 51079.—E. N. T., a nursing white child, eleven months old, had three days previous to admission been given squirrel meat. There was some choking and gagging, and baby had difficulty in swallowing afterwards.

Examination was negative except for dysphagia and occasional regurgitation of food and liquids. X-ray showed a shadow of increased density in upper oesophagus.

Oesophagoscopy with a 7 m.m. tube showed a foreign body just below the crico-pharyngeus, lying in a transverse position. The foreign body was grasped with side-curved forceps and readily extracted.

The child made an uneventful recovery and was discharged on the next day in good condition.

Subsequent X-ray negative. Foreign Body.—Squirrel bone.

Foreign Body Oesophagus.—Case 4. No. 54483.—E. N. T., colored boy four years of

age, who six hours before admission, came to his mother saying he had swallowed a nail. There has been marked salivation since, and some difficulty in swallowing, but no pain, nor other discomfort.

X-ray showed a small nail lying transversely in the oesophagus at the level of the fifth cervical vertebra, with the tip slightly downward.

Oesophagoscopy with the 7 m.m. tube revealed nail just below crico-pharyngeus. Head was grasped with side-curved forceps and readily withdrawn.

Patient discharged two days later in good condition.

Foreign Body.—Nail.

Foreign Body Oesophagus.—Case 5. No. 54380.—E. N. T., patient is a two year old girl, with a history of having swallowed a button two months ago. Child had been taken to a local physician who failed in an attempt to find a foreign body, and had advised waiting to see if button would be passed by bowel. The patient has subsisted on liquid and soft food since, and, although she has had some difficulty in swallowing, there have been no other symptoms.

X-ray examination with barium meal showed an obstruction at the level of the first and second dorsal vertebrae.

Oesophagoscopy with a 7 m.m. tube revealed a rounded black edge just below the crico-pharyngeus, surrounded by an area of granulation tissue and some pus. After sponging away the blood which came from the granulation, we were unable to see the foreign body again. Fearing perforation, the tube was withdrawn.

A barium meal two days later showed no obstruction at this site, so we surmised that the foreign body had passed on into the lower gastro-intestinal tract.

Four days later, an oesophagoscopy was done for inspection of the old site. This area was noted to be clean, and there was no trace of any invader.

On the fourth day after this, the foreign body was passed by bowel.

Foreign Body.—Button 2x2 c.m.

Foreign Body Oesophagus.—Case 6. No. 55259.—E. N. T., a white girl four years of age, choked while playing day before admission to Hospital. Playmates said she had swallowed a piece of tin. Mother tried to reach it with her finger, and although she felt it at first, it soon passed beyond her reach.

Local physicians advised eating bread and potatoes, which was promptly vomited, although liquids were swallowed very well.

An unsuccessful attempt was made to remove the foreign body elsewhere, before admission here.

X-ray showed a large opaque foreign body, 2x3 c.m. in size, at the level of the seventh cervical, and first and second dorsal vertebrae in a transverse position.

Oesophagoscopy was done, using the adult anterior commissure laryngoscope. The foreign body was readily visualized just below the crico-pharyngeus, grasped with alligator for-

ceps and withdrawn. Recovery was uneventful and patient discharged on the third day.

Foreign Body.—Folded piece of tin, 2x3 c.m. 104 *East Market Street.*

HUNNER'S ULCER OF THE BLADDER—A REPORT OF TEN CASES

By A. I. DODSON, M. D., Richmond, Va.
From Urological Department of St. Elizabeth's Hospital.

The description by Hunner of the symptoms, appearance and pathology of a so-called "elusive" ulcer of the bladder as observed in eight cases (Hunner, Guy L., "Transactions of Southern Surgical and Gynecological Association," 1914, Vol. XXVII, pp. 247-289; and by personal communication of February 24, 1926) has been confirmed by many urologists; and a sufficient number of cases have been reported by him and by others to establish the disease as a definite pathological and clinical entity. Experience has strengthened the evidence that the disease is a result of a focal infection, but has materially changed the original views regarding treatment.

This paper is the result of our observations upon ten cases of this disease. Four have been previously mentioned, one having been reported in detail ("Frequency of Urination," VIRGINIA MEDICAL MONTHLY, February, 1925, pp. 674-679). The remaining six were treated during the past twelve months. All of these patients complained of dysuria and frequency of urination, the bladder capacity being materially reduced, averaging less than five ounces. Three of the patients had practically no control, their frequency of urination being so marked that they were confined to their rooms. There was increased sensitiveness of the urethra in all cases and the lumen of the urethra in two was definitely narrowed. All had tenderness just over the pubis, while in four there was constant pain in the pelvic region. Four of the patients had been previously operated upon elsewhere with the hope of relieving the symptoms. Three of these operations were suspensions of the uterus and one was repair of a cystocele. In every instance the urine was macroscopically clear. In two cases there were a few leukocytes found at every examination and the urine of the remaining eight contained at times an occasional red blood cell and leukocyte. Three of these patients gave a history of occasional blood in the urine. In seven of these patients the lesion when seen through the cystoscope was insignificant in appearance, occurring as a small hyperemic patch at or near the apex of the bladder, fairly sharply marked and presenting in the center what appeared to be slight erosions. (Fig. I). In the remaining three the ulcerations were much more pronounced. In one patient who had had three fulgurations previous to admission, there was a large crater-like lesion situated at the apex of the bladder. (Fig. II). Another had a distinct erythematous area about two centimeters in length and surmounted by four small ulcers extending across the anterior wall of the bladder. In one of the patients there were two fairly large ulcers, one situated on each lateral wall. The lesions in this case were about two centimeters in length by one centimeter in width. (Fig. III). The average age of the ten patients was 43½ years, the youngest being 24 years,

Fig. 1.—Cystoscopic appearance of lesion near the apex of the bladder of about two years' standing.

the oldest 77. The average duration of their symptoms was eight and a half years, varying from one to twenty-seven years. In the majority of instances the symptoms first made their appearance during the third decade of life. The oldest patient, 77 years of age, had only suffered two years.

In Hunner's original report, he expressed the belief that there was some relation between focal infections and these bladder lesions. This opinion has been strengthened by the experimental work of Bumpus and Meisser of the Mayo Clinic, who obtained ulcers in the bladders of laboratory animals by injecting bacteria obtained from abscesses of teeth and tonsils (Meisser, John G. and Bumpus, Her-

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mon C., Jr., "Focal Infections in Relation to Submucous Ulcer of the Bladder and to Cystitis," *Jour. of Urol.*, October, 1921, pp. 285-298), and by observing the large number of patients with an elusive ulcer of the bladder who have demonstrable infectious foci.

Careful study of all our patients was made to determine whether any such relationship existed. We found that seven had at the time of examination or previously such infections involving the teeth, tonsils, or sinuses. Two of these patients also had infections of the cervix. The infectious foci, wherever discovered, were treated. In only one instance was there apparent a striking result from such treatment. after discharge from the hospital she was entirely free of her bladder symptoms. At the present time, three months after her discharge, there has been no recurrence of symptoms.

In two patients of this series there were distinct kidney infections. One of these had two ureters on the left side, in one of which there was a stenosis of the orifice. Just at the outer side of the stenosed orifice was a small punched-out ulcer surrounded by considerable edema and congestion. Infected urine was obtained from both the left ureters. The pelvis of this kidney was irrigated at intervals of two weeks for three months. At this time the urine was clear of the infection and the ulcer

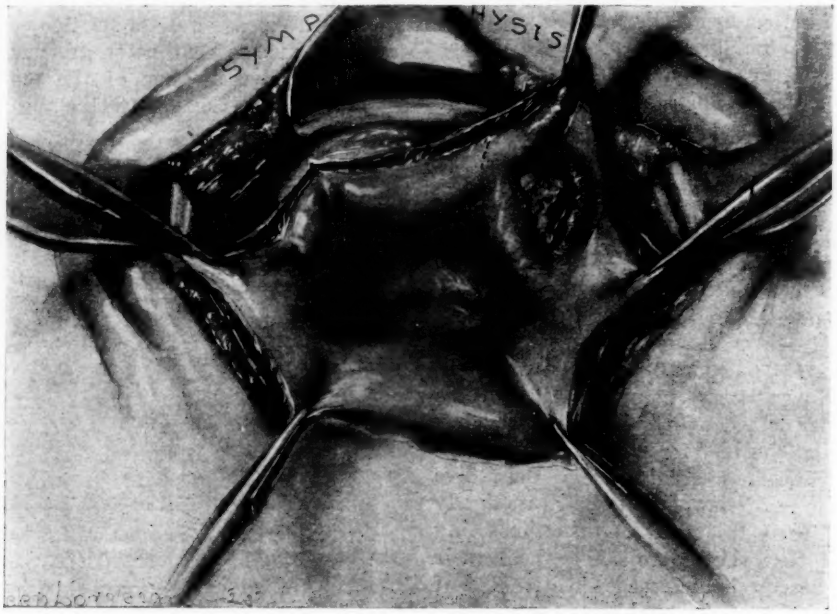

Fig. II.—Operative exposure of ulcer near apex of the bladder. This ulcer had been fulgurated three times during a period of eighteen months. This has very definitely changed the character of the lesion.

Patient No. 9, Miss X., 77 years of age, was found to have four very badly infected teeth. Following the extraction of these teeth she suffered a pronounced reaction, temperature from 100 to 103 for four days, exacerbation of chronic neuritis of the right arm and a definite increase in the severity of her bladder symptoms. She remained in the hospital eight weeks, during which time she was given bladder irrigations and instillations of silver nitrate. She left the hospital slightly improved and has since had no treatment. Thirty days had healed but the patient was only partly relieved of her symptoms. A more careful examination of the bladder showed four small ulcers on the anterior wall in a semicircle about two centimeters from the internal sphincter. A sharply marked area of hyperemia surrounded them. In the other case, kidney infection was bilateral, probably a result of ureteral strictures which were very pronounced on both sides.

In the four patients who were operated upon, the lesion appeared much more clearly defined

at operation than when seen through the cystoscope. There was a well-marked area of hyperemia in which the mucous membrane was raised above the normal bladder surface. One or more small ulcerations were seen on the surface of the lesion. In three cases these areas had more the appearance of a contusion of the mucous membrane than an ulcer. In one patient who had had three fulgurations of the lesion, extending over a period of eighteen months, there was a rather large ulcer occupying three-quarters of the hyperemic area. This ulcer was quite deep and on one side somewhat excavated. (Fig. II). In three of the cases there was only one lesion. In one case there were two separate and distinct areas of inflammation, one on the lower left lateral wall, just above the ureteral orifice, and the other on the right lateral wall just above and behind the right ureteral orifice. The mucous membrane between these two lesions was normal in appearance. (Fig. III). The bladder wall in all cases was distinctly thickened in the area of the lesion and had lost its elasticity. Distention of the bladder with fluid previous to operation caused some bleeding in each case. In two cases there was evidence of inflammation in the prevesical tissues as shown by adhesions to the bladder wall.

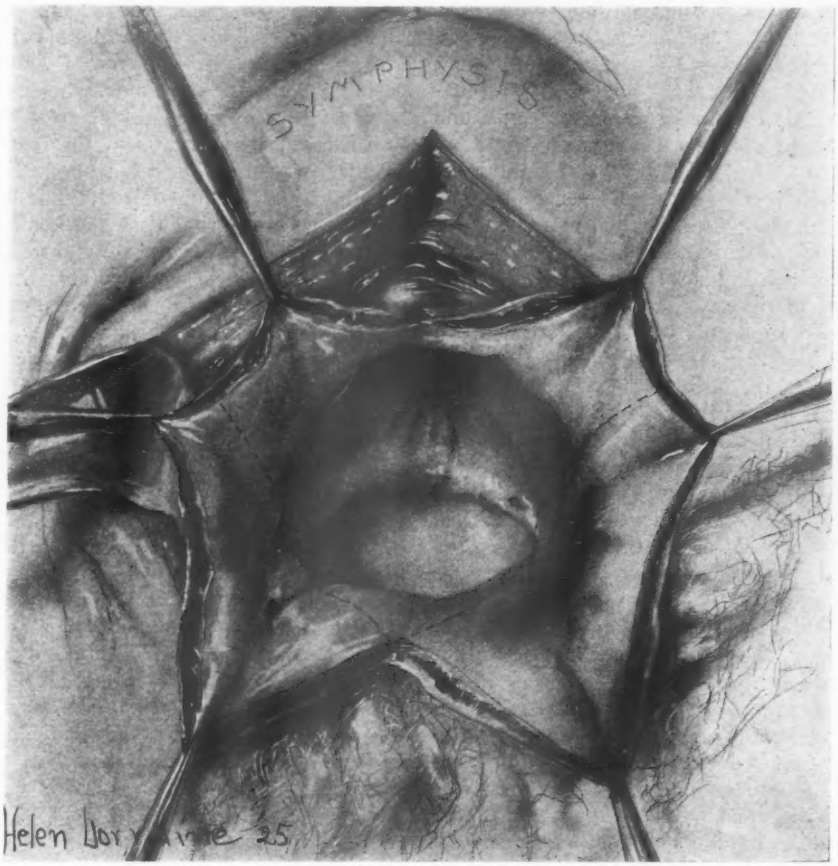

Fig. III.—Operative exposure of ulcers, one situated on each lateral wall. In order to remove all the infected area, it was necessary to remove the lateral walls almost to the base of the bladder.

Microscopically the ulcers when removed showed an inflammatory process of long standing. The ulcer-bearing area showed some loss of epithelium, but this was not marked. In the submucosa were newly formed blood vessels packed with red blood cells. Round cell infiltration interspersed with newly formed

connective tissue cells was present throughout the submucosa and the muscular layer.

Considerable uncertainty exists as to the best method of treatment in these patients. In his original contribution on this subject, Hunner assumed that a disease of such chronicity and involving the entire bladder wall was best treated by complete excision of the infected area. This view was also held by other urologists in their earlier cases. As time elapsed such a large percentage of the patients showed a return of symptoms and a recurrence of the lesion that these earlier opinions have materially changed. Hunner states that in a series of 102 cases seen since 1918, 25 of which were operated upon, there have been 8 recurrences. Of his total cases of 44 excisions, one died and there has been a recurrence in 18, or 42 per cent. He believes that the total recurrence will reach at least 50 per cent. His present method of treatment is to remove all possible foci of infection, clear up ureteral strictures, which in his series occurred in about 60 per cent of the cases, and use local medication. In those patients who do not respond to this method of treatment, he advises thorough fulguration of the lesion, and, as a last resort, in cases that do not improve under such treatment, he advises resection of the bladder. Keene states that irrigations and local applications have not been successful in his hands, but rather made the patient more miserable. It is his belief that fulguration should be tried immediately in all cases and that resection should be done in those who do not improve. He says that Braasch has found fulguration disappointing, the improvement lasting only a short time (*Am. Jour. of Ob. & Gyne.*, September, 1925, pp. 380-385). Furniss refers to resection of the ulcer as a formidable operation and thinks that it does not give any better hope of cure or freedom from recurrence than fulguration. He quotes Kretschmer, Rathburn and Hyman as having the same opinion. He reports results of fulguration in six patients with complete relief in five, three of whom had previously had resections. He believes that the greatest relief is obtained and best looking bladders result when fulguration was most thorough. His best results have been in cases fulgurated through a suprapubic incision (Furniss, H. Dawson: *Am. Jour. of Ob. & Gyne.*, March, 1924, pp. 288-291 and personal communication, March 2, 1926).

The lapse of time since treatment in our cases has not been long enough to draw very definite conclusions as to the permanency of results. In four of our ten cases there were resections of the bladder. The first patient operated upon also suffered from a large ventral hernia which was repaired at the time of resection of the bladder. She had a recurrence of both the ulcer and the hernia about six months after operation. Twelve months later, chiefly because of the incapacity resulting from breaking down of the hernia, she was again operated upon, the recurrence in the bladder resected and the hernia repaired. Following the last operation she was entirely comfortable for six months when she began to have a return of the bladder pains. Examination showed a hyperemia of the region of the bladder previously operated upon. There was no ulceration to be made out. The hernia did not recur. Since that time she has been given instillations of silver nitrate and neosilvol and has remained quite comfortable. At no time since the first operation have the symptoms of the bladder been so marked as for a number of years before this operation. The second patient operated upon died of pneumonia two and a half years after operation without recurrence of symptoms.

In the third operative case the bladder was resected nine months ago. She had, in addition to two large ulcers, very dense strictures of both ureters. Her bladder capacity was less than two ounces at the time of operation, and frequency of urination was so marked as completely to incapacitate her for any work or social activity. She also suffered from cervicitis and very badly infected tonsils. Her tonsils were removed, the cervix treated by local applications and irrigations, and a very wide resection of the bladder wall was done, removing a part of the posterior wall of the bladder and about half of each lateral wall. After the operation the bladder capacity was very small, the bladder holding only two ounces with the patient under an anesthetic. Immediately following the operation she was entirely free of any pelvic pain. During her stay in the hospital of about eight weeks, her bladder capacity increased to four ounces. Her urine continued to contain considerable pus and she had some burning when she voided. Examination at this time showed general congestion of the entire bladder mucosa. With

the hope of clearing up the infection, which also involved the kidneys, she was given 5 mg. of mercurochrome per kilogram of body weight intravenously. She was sent home with instructions to take ten globules of hexylresorcinol daily. Two months later when she returned for examination her urine contained only an occasional leukocyte. She still had to get up from two to three times at night to void, but her bladder capacity had increased to six ounces without discomfort. Efforts to pass No. 6 catheters up the ureters were unsuccessful because of the strictures. The bladder mucosa was slightly hyperemic but very much improved. There was no evidence of an ulcer. At the present time she is quite comfortable with the exception of backache, her bladder giving her very little concern. There is still some frequency but no pain. If she can be induced to return for complete dilatation of the ureters she will probably be entirely well.

The fourth operative case had suffered four years. For a period of eighteen months she was under treatment by another urologist who had given her three fulgurations, in July, 1923; April, 1924; and February, 1925. Following each fulguration she was much more comfortable for from two to three months, when the pain reappeared. When she consulted us, she was voiding every thirty minutes, and required morphine several times a day for a measure of relief. Because of the history of repeated fulgurations without lasting benefit, and because of the fairly satisfactory results in other cases, we advised resection. The ulcerated area of the bladder, consisting of the apex, was resected on December 14, 1925. The specimen was four centimeters in diameter, and contained a deep excavating ulcer two centimeters long and one centimeter wide. The mucous membrane surrounding the ulcer was hyperemic for a distance of one centimeter. She remained in the hospital six weeks. At the time of her discharge she was quite comfortable with the exception of some soreness in the region of her bladder, and voiding from three to four times at night and every two hours during the day. Her bladder capacity without marked discomfort was four ounces. She was sent home and her doctor requested to give her irrigations of silver nitrate, beginning with one to ten thousand solution and gradually increasing the strength to one to one thousand, these irrigations to be kept up for two or three months. After this time she was advised to come back for further observation. When heard from on March 1, 1926, she wrote, "I am so much better since I came home, and I am taking irrigations twice a week but still have right much soreness in the bladder. I can go from two to three hours very comfortably without voiding, and have gained fifteen pounds."

One patient was treated by fulguration, followed by instillations of silver nitrate. Following the fulguration, instillations of ½ of 1 per cent silver nitrate were kept up for four months at intervals of one week. At the end of this time, examination showed her bladder to be entirely normal in appearance, and now, after the expiration of eighteen months, she has had no further recurrence of symptoms. One patient is now free of symptoms four months after the extraction of four badly infected teeth and instillations of silver nitrate extending over a period of eight weeks. One patient, after keeping up the instillations of silver nitrate for four months, has had no further symptoms for six months, during which time she has had no treatment. The remaining three patients are still under treatment consisting of instillations of silver nitrate. Although not well, so long as they keep up their treatment they are able to go about their work and remain quite comfortable.

The method of using instillations of silver nitrate in these cases was adopted after trying almost every possible type of irrigation with very little benefit. Having noticed in reports by Hunner that the application of 10 per cent silver nitrate at intervals of two weeks kept the patients fairly comfortable, we decided to determine if a solution of silver nitrate could be instilled into the bladder of sufficient strength to give benefit and at the same time not be so irritating as to increase the discomfort already present. At first one to five hundred solution of silver nitrate was used. A catheter was introduced and the bladder thoroughly irrigated with plain water. About two ounces of a solution of nitrate of silver was then instilled through the catheter, the catheter clamped off and the solution permitted to remain five minutes. The bladder was then thoroughly irrigated with normal salt solution. Using this technic, we have gradually increased the strength of the solution and have found

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that we can begin with ½ of 1 per cent silver nitrate, provided it is put in through a catheter, left in from five to ten minutes, drained off, and then the bladder irrigated with normal salt solution. The strength of the silver nitrate can be gradually increased in some cases up to 1½ per cent. In the majority of cases, not more than 1 per cent can be tolerated. We have found that in most patients, instillations of 1 per cent silver nitrate by the above method from once to twice a week according to the tolerance of the patient will cause a gradual amelioration of the symptoms and an improvement in the appearance of the lesion. In fact, in one of our cases all evidence of the lesion has entirely disappeared after this treatment had been given for a few months. One patient who has been under treatment twelve months, getting instillations at first once a week and now once every two weeks, is able to sleep all night without having to empty her bladder, and her only discomfort is pain when the bladder becomes distended. Cystoscopic examination twelve months after the treatment began shows one of the two original lesions to have disappeared and the other to have decreased in size. Two patients who have had this treatment have been very much improved so far as their symptoms are concerned; but, probably owing to the fact that they have been so irregular in coming for treatment, the lesions have not materially changed. One has been under observation two years and one about three months.

This method of applying silver nitrate will greatly relieve the distressing symptoms of all these patients. It can be administered by a nurse or a trained attendant, and, in some instances, if kept up over a sufficient length of time, may lead to complete and permanent disappearance of the lesion.

Conclusions

1. Experience justifies the belief that foci of infection, such as infected teeth, tonsils, sinuses and possibly cervicitis bear a causative relation to Hunner's ulcer.

2. The bladder lesion is frequently complicated by ureteral strictures and infection of the kidneys which must be eradicated before permanent relief can be obtained.

3. Very gratifying results have been obtained in early cases by instillations of silver nitrate according to the method described.

4. Excision of the ulcer-bearing area of the bladder should be reserved for those cases that have not responded to local medication or to fulguration.

5. In long standing cases of elusive ulcer there is contraction of the bladder wall and urethra, which often causes a persistent frequency after the lesion has been removed and the pain relieved. In these late cases, after either fulguration or resection, dilatations of the urethra and irrigations of the bladder are helpful.

IODINE IN DYSTHYROIDISM.—A REVIEW.*

By WALTER P. ADAMS, M. D., Norfolk, Va.

Since Plummer advocated the use of idoine in exophthalmic goitre in 1922, there has been a tendency to give iodine in all goitre conditions. Newspapers, some lay health magazines, patent medicine advertisements and many other persuasive forces affecting laymen have brought before them the idea that iodine, in any of its forms, is a cure-all for goitre. Many of the large goitre clinics, as well as physicians in all sections of the country, have had cause to complain because of its improper use. It has frequently been given in cases that should have had it only after thorough clinical investigation and during preoperative care, as well as in cases that should not have had it at all.

The peculiar function of the thyroid appears to be the splitting up of any iodine molecules entering the body, and the conversion of this iodine into the specific thyroid product known as thyroxin. Approximately .33 mg. of thyroxin is delivered to the body daily by the thyroid gland, the amount varying with the metabolic activity of the body. There is over forty times this amount stored in various tissues of the normal adult body. There may be other functions of the thyroid of which we know nothing.

The early Greeks treated goitre by the internal administration of the ash of burned seas sponges, not knowing that the substance was rich in iodides. Iodine was first knowingly used in treating goitre in Switzerland in the eighteenth century, but the work was not well controlled. Trousseau made his famous mistake in 1863 when he prescribed iodine in-

*Read before the Norfolk County Medical Society, at Norfolk, Va., June 21, 1926.

stead of digitalis, and later discovered his mistake and also the marked improvement of the patient.

Prophylaxis against goitre was started in some French schools between 1860 and 1870, but occasional reports of resulting hyperthyroidism brought it into disrepute. No reason could be found for its administration.

Baumann in 1895 discovered that iodine is a normal constituent of the thyroid gland and various hypotheses as to the importance of its presence have been formulated from time to time since then.

It is important to note that some workers consider simple goitre due to infection. Shepherd, reporting on the occurrence of goitre in Canada, concludes that it is a water borne infectious disease, directly comparable to typhoid. McCarrison has also supported a toxic infective hypothesis. This assumes the presence of specific bacteria, probably of the colon type, as delivering a toxic product affecting utilization of iodine by the thyroid gland. However, to most of us, the iodine deficiency hypothesis is more acceptable.

This brings us to the physiologic importance of iodine in the thyroid. A classification is necessary. On the basis of etiology all goitres can probably be divided as endemic and exophthalmic. The endemic goitres may be divided into the diffuse colloid and the adenomatous, and the adenomatous goitres into those with and those without hyperfunction.

It is now accepted generally that a supply of iodine inadequate for thyroid functions will result in hypothyroidism and consequent intensive or continued stimulation. This in turn, acting on a primarily normal thyroid gland, will cause compensatory hyperthyroidism with simple hypertrophy of the gland.

If this cycle of hypothyroidism and resulting excessive stimulation of the gland is repeated often enough, the result is a diffuse colloid goitre. Iodine deficiency has been definitely proven to be the important etiologic factor in this condition. Patients with colloid goitre are greatly benefited by the administration of iodine. This facilitates the production of a normal thyroxin which is necessary to meet the demands of the body. However, iodine has been supplanted in the treatment of colloid goitre by desiccated thyroid gland and by thyroxin itself. Either of these preparations, if given in sufficient quantity to meet the body demands, allows the goitrous thyroid temporarily to become an unnecessary organ and to rest. In the case of glands that have passed through this cycle a number of times, and in which much colloid has been deposited, iodine does not seem to be utilized and the absorption of colloid only occurs after the gland is put at complete rest by the necessary desiccated thyroid or thyroxin.

Knowing the etiology of this condition, it follows that in its prophylaxis the administration of iodine is most important. Water and salt are the main vehicles used for the small prophylactic doses of iodine being given the public by health authorities in sections of the country where goitre is prevalent. The necessary dosage is minute and, if given in tablet form, only a short annual course is required.

It is thought that in most cases adenomatous goitre has its inception in colloid goitre. Thus it has a direct bearing to lack of iodine. It is possible that the formation of adenomatous tissue is a compensatory attempt to readjust the stimulating mechanism of the thyroid to normal. In its early life, adenomatous tissue cannot function. It elaborates and stores colloid probably years before it can elaborate and store thyroxin. It follows, and observation offers corroborative evidence, that very few hyperfunctioning adenomatous thyroids appear in patients younger than thirty. However, once adenomatous thyroid tissue has started to hyperfunction, it does so erratically, and without relation to the demands of the organism. It is thought that the symptoms that follow are due to an excess of normal thyroxin in the tissues of the body.

The treatment of these adenomatous goitres is not with iodine. It is essentially surgical, whether the goitre is of the hyperfunctioning type or not. Iodine is considered particularly dangerous because of the apparent close relation of the beginning of hyperfunction and the administration of iodine in many cases. This occurs particularly in those having had the adenoma any length of time. For this reason, we may consider iodine definitely contraindicated, after the age of twenty-one, in the presence of an adenomatous goitre. Yet there are many with this condition who will continue to have iodine given them on advice from various sources, and in some cases from physi-

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cians. It should be stressed that after twenty-one years of age, iodine is of no avail in treating goitre except of the exophthalmic type, and that with increasing age it is employed with added risk.

It is known that fetal adenomata result from iodine deficiency, so its treatment in iodine-poor sections is obvious.

Exophthalmic goitre has no known cause, although a definite etiologic and histologic sequence can be thought of as taking place. It has been mentioned that continued stimulation of the gland from hypothyroidism will cause hyperthyroidism or over-function. In this condition there is no compensatory formation of adenomatous tissue as in adenoma. According to Plummer, the action is an over-stimulation of the gland causing the production of an incomplete secretion rather than the excessive production of thyroxin. If this is true, then iodine probably acts by completely iodizing the incompletely formed molecule of thyroxin. The gland is consequently put at rest by allowing it to complete the formation of its normal secretion.

In working towards proof of this hypothesis, thyroid glands removed after the use of iodine were microscopically examined and it was seen that large amounts of colloid had replaced the areas of hyperplasia, and that the glands had a tendency to resume an appearance toward that of normal. If the appearance of the gland became more normal, why in time would it not undergo a complete transitory change, and resume its normal function as a result of the medical treatment with iodine without surgery? Clinically it was found that this did not occur because after some time a tolerance to iodine developed. Its efficacy is diminished and a low grade hyperthyroidism continues. These patients are liable to have a flare-up at any time after this tolerance has been established.

From this we see that iodine cannot be used as a cure for exophthalmic goitre. Surgery must be called upon. It is dangerous to neglect surgical treatment after iodine therapy has been started, although many patients have improved so much as to almost refuse operation.

We all know that iodine therapy in the form of Lugol's solution has revolutionized the treatment of this type of goitre and has rapidly reduced its mortality rate. By means of Lugol's solution we are able to abort or prevent the crisis. Very toxic patients receive massive doses. Most striking is said to be the effect on gastro-intestinal crises in which the mortality rate was quite high. Within forty-eight hours the thyroid gland is put at rest and the patient is quiet and composed. Since its introduction, the dosage of Lugol's solution for this condition has been steadily increased and the pre-operative period of preparation reduced. Primary thyroidectomy is now more often possible and there has been a decrease in the number of multiple operations. After operation, large doses of iodine in decreasing amounts are given these patients for some time.

In summarizing, we can definitely say that iodine causes a remission of the toxic symptoms in exophthalmic goitre.

Various routines for administration before and after operation have been worked out by different clinics. However, strict adherence to a constant dosage is not advisable as the individual factor of progress of the disease is enormous. The general belief now is that the present dosage is too large, and a smaller dose adjusted to the individual suggests itself. There is undoubtedly much work being done at present as regards dosage, based on excretion, storage in the gland, and clinical improvement. It is important that a patient with this diagnosis be sent to the surgeon who is to operate, without having had Lugol's. This is in order that the surgeon may see the benefit of its use and thus determine the type of operation best suited to the individual.

Since Lugol's has been used in some clinics, there has been a higher percentage of myxoedema following subtotal thyroidectomy. This is because the type of tissue remaining in patients who have had iodine is much less active than that left in patients who have not had it.

A most important point is the recent appearance of numbers of cases having symptoms which may be grouped under the syndrome iodine-Basedow. Jackson uses the name iodine hyperthyroidism, and in a recent rpeort of thirty-eight cases, states that the condition is becoming increasingly prevalent. The many kinds and preparations of iodine on the market have been held responsible for this de-

velopment. It should be stressed that the promiscuous use of iodine results not only in diagnostic confusion, but is at times distinctly dangerous. The majority of patients affected with iodine hyperthyroidism are over thirty because the development of symptoms only occurs in those previously having an adenomatous goitre.

The syndrome can be distinguished from toxic adenoma and from exophthalmic goitre. Thyroidectomy is usually necessary to relieve these patients. The prognosis is good in early cases, since little permanent damage has been done the vital organs. In late cases the damage is usually serious and fatalities have occurred.

The explanation of excessive iodine on adenomatous tissue is not clear. Crotti believes the changes to be similar to any other form of toxic or bacterial thyroiditis. If so, hyperemia, cellular hypertrophy, and hyperplasia take place and the rich iodine colloid undergoes liquefaction and is quickly absorbed, producing excess thyroxin. Others state that the iodine metabolism of the gland is disorganized. They consider the thyroid unable to metabolize the iodine which is in the circulation, either in excessive amounts or as an incomplete toxic product. In either case, the result is a thyrotoxicosis. The important point is that iodine will bring about a thyrotoxicosis in adenomatous thyroids, and therefore should be used only after careful clinical study of all patients.

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PRACTICAL POINTS IN OBSTETRICS.*

By W. H. RIBBLE, M. D., Wytheville, Va.

The object of this paper is not to contribute anything new to the already voluminous literature on obstetrics, but to look back over the general principles of reproduction and the agencies at work in Nature's unerring provision for generation and parturition, so we may not forget that normal labor will terminate successfully without our assistance, and, at times, more successfully than with our interference.

There is nothing in Nature which is performed with more certainty or provided for in a more wonderful and unerring manner than the propagation of life.

Watch the weeds come up in the well cultivated garden after each rain; watch the tadpole come from the egg in the edge of a pond, then develop legs, lose his tail, and crawl out on dry land—a frog; see the wiggle-tail come to the surface of the water, burst its shell and fly off—a mosquito.

Birds, at the proper season, will mate and, by the time the fertile eggs are ready to be laid, a nest has been built to receive them and the prospective mother devotes her time to keeping them warm till the birdies come forth. She then feeds and protects her young, and keeps their nest clean till they are ready to fly away.

Thus, we might w a t c h life—from the micrococcus to the rhinoceros—and we will see that the vital energies of all living things are mainly expended in feeding themselves and breeding their kind, till we come to *man*. He is endowed with a mind, much stronger but, sad to relate, not as unerring as the instinct of his inferiors. With him, the harmonious and unerring laws of Nature are made to detour and are jostled over the by-paths of self-indulgence, ambition, false pride and disregard for his duty to his and the next generation. He feeds better and breeds less.

When the young man and the young woman arrive at the age when Nature has fitted them for propagation, they feel an affinity for one-another. Some of the unsophisticated wed young, build up a normal home and raise a family of children. But few women marry during the first years of womanhood. Their unfulfilled mission leads them to the dance, the petting party and many other diversions from which they get a thrill. (One young woman, who committed suicide, left a note saying she did it to get a new thrill).

When they finally decide to marry, it is often with some other motive than to raise a family. In fact, their greatest concern is how to prevent the natural consequence of the union and, if it occurs, how to defeat its object. Such

*Read before the Southwestern Virginia Mediral Society, at Roanoke, Va., March 30-31, 1926.

unions are contrary to Nature, the parties thereto often drifting farther and farther apart, till many of them meet in the divorce court, instead of over the cradle of their offspring. A recent magazine contained an article on the subject of women who married for the purpose of getting a divorce, with alimony, and stated that some were found who are getting it from two and three different men.

These deranging influences reverse the gears of Nature. The ganglia, whose function it is to harmonize and govern the nutrition and functions of the generative organs, are thrown into confusion. This is a probable explanation of the "infantile" uterus, undeveloped mammae, the irregularities and pain of menstruation, the various nervous disorders and the exaggerated pain of parturition—which conditions are not seen in the lower animals, which have no minds to interfere with the normal course of events.

Let us now form a mental picture of the female pelvic cavity and its contents. Here we find the bladder, uterus, rectum and vagina —all active organs, which, in performing their functions, must dilate and contract extensively. Hence, the connective tissue, between and around them, is a loose cellular connective tissue, with "trabeculae dividing and reuniting —leaving between them spaces, so that the tissue assumes the character of a loose plexus" (Klein), which holds the organs in place loosely and admits freedom of motion.

All active organs require active blood and lymph supply, so we find the vaginal, uterine, vesical and rectal arteries are large and anastomose freely with one another through the loose connective tissue.

The veins, of course, are proportionately large and numerous and the vaginal veins form two complete vascular sheaths around the vagina, making it an erectile tissue.

Lymph sinuses and lymph clefts and plexuses, in and around these organs, are exceedingly plentiful and, in permeating the loose connective tissue, add elasticity and pliability.

Mucous and other secretory glands line the cervix, vagina and labiae to lubricate them, when such is needed.

Nerve filaments from the sympathetic and sensory systems pass through co-ordinating gangliae and are distributed to all these things, so that, when the day of delivery comes, a message is sent to every organ and function, to prepare for the coming event. There is an afflux of blood to the parts, stimulating the functions of every participant. This hyperemia, pressing on the sensory nerves, causes an aching of the back; passing on to the uterus, it stimulates its muscular fibers to contract. The lymph spaces are filled with lymph and the veins are distended, rendering the parturient track puffy and dilatable.

The glands throw out a profuse viscid secretion to lubricate the track and to entangle any bacteria which might produce infection. The gush of the amniotic fluid gives the canal an aseptic douche and the advancing body of the child wipes the canal clean. This, probably, is an explanation of why we do not more frequently meet with post-partum inflammation in cases with known infection. Another explanation might be that the great vascular and lymph supply of the parts gives them the power to resist the action of much infectious material.

The more we study this picture and the mechanism of labor, the more we will be convinced that a normally developed woman—under normal conditions—will bring forth her child without assistance. Then, it would appear, our main duty is to bring about a normal condition. We should impress upon the woman's mind, when she comes to us, all worked up because she is pregnant, that she has nothing to fear,—that the thing which has happened is the thing which she was built for, and that, without it, her life fould never be complete. We should warn her against being impressed by the kind lady who will tell her of maternal impressions and many awful things to which she may look forward; and thus we may direct her mental as well as physical welfare through her period of gestation, that we may bring her to and through a normal delivery. And *we* should keep fresh in our minds, in this day of rush and hurry, what has to take place in the different stages of labor,—that the child's head must be moulded as it passes through a tortuous, bony canal and dilates the tissues as it passes, and that, if its speed exceeds the yielding powers of the tissues, rupture is bound to result,—*rupture*, which is the cause of more trouble, to the childbearing woman than anything else with which she has to contend.

THE SURGICAL INDICATIONS OF INFLAMMATORY DISEASES OF THE GALL-BLADDER.

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The morbidity and mortality of the surgical diseases of the gall-bladder and biliary ducts can be lessened by the timely and judicious employment of appropriate operative measures. Guided by our clinical experience and a study of the English, French and German literature of the subject published during the last five years, it is my wish to briefly discuss the indications for and the usefulness of operative treatment of inflammations of this organ. The rapid, permanent and complete cure of inflammatory diseases of the gall-bladder and biliary passages can only be secured by the aid of surgery. Medical treatment is palliative and valuable in the pre- and post-operative management of these affections. To furnish the occasional operator with safe indications for the performance of either of these two operations, cholecystostomy and cholecystectomy, is the sole object of this paper. Formerly, there was a tendency to extreme conservatism; surgeons were hesitant and only badly diseased gall-bladders were removed. Nowadays the reverse obtains and, of the two operations, cholecystectomy is the more popular, the more frequently performed, and is said to be more often followed by complete and permanent recovery and to do, when skilfully performed, the most good to the greatest number.

In inflammations of the gall-bladder, calculous or non-calculous, complicated or uncomplicated by disease of the neighboring organs, cholecystostomy and cholecystectomy have each their respective sphere of usefulness. No surgeon of experience employs either exclusively. Irrespective of the type of operation performed, a certain percentage of cases present post-operative symptoms. Some clinicians teach that a diseased gall-bladder is a potential menace and should not be left in the abdominal cavity any more than a diseased appendix; others maintain that the gall-bladder should be left whenever possible, claiming that its ablation is a mutilation and that it is a safe and sure guide to the common duct should a subsequent operation on the bile tracts be necessary. After removal of the gall-bladder, exploration of the bile-ducts is attended with great difficulties.

Drainage of the gall-bladder is a safer and easier procedure in the hands of the average surgeon and in the average case. It is easy of execution, requires little operative skill and, in desperate cases, is an emergency operation giving immediate relief and is frequently life-saving. Many patients are so improved by an emergency or preliminary cholecystostomy that they, when their condition is stabilized, willingly and safely submit to further restorative operating or to the removal of their diseased gall-bladder. In fulminating cases, carry the acute gall-bladder by drainage to the subacute or chronic stage and remove it later if it becomes neccesary.

Cholecystectomy removes completely from the body a focus of infection and is usually attended by an earlier, more complete and permanent disappearance of symptoms. The advocates of cholecystectomy say that its end-results are as superior to cholecystostomy as those of nephrectomy for pus-riddled kidneys are better than those of nephrotomy. They further maintain that cholecystostomy is an incomplete operation because the retained gall-bladder is a potential source of future trouble and is an important factor in stone production and in the persistence and recurrence of symptoms. The secreting glands and crypts in the lining membrane of the gall-bladder may be retention pockets of sediment, pus and bacteria.

An intelligent and profitable discussion of the subject calls for a knowledge of the important accepted and established facts known concerning the anatomy and physiology of the gall-bladder and a brief review of the etiology and pathology of its inflammatory diseases.

The gall-bladder is not a useless, not a vestigial organ. Its routine removal is to be condemned. When diseased, if its restoration to approximately normal function and normal structure be probable, it should not be removed. If the gall-bladder is irreparably diseased, its removal is necessary. Formation anew of the gall-bladder never takes place.

The relations (anatomical and physiological) existing between the gall-bladder and bile-ducts and the contiguous organs (first part of the duodenum, pyloric end of the stomach, liver, head of the pancreas, etc.) are intimate

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and important. Functional impairment and anatomical deviations of any or of all the constituent parts of the biliary system, determine more or less biliary insufficiency and digestive disturbances. These lower vitality, entail invalidism and predispose to, when they do not result from, calculous, inflammatory, neoplastic and other degenerative processes in the gall-bladder and related organs.

Anatomical and physiological integrity of the gall-bladder and bile-ducts (excretory and secretory parts of the hepatic system) is essential to the perfect physical state of the individual. Normal hepatic function presupposes, among other conditions, adequacy of the lumen of the cystic, hepatic and common ducts and normalcy of the mucous membrane and musculature of the gall-bladder. The organ must be free from adhesions and its motility and contractility unimpaired.

About the gall-bladder, extending beneath the serosa and especially between the liver and gall-bladder, there is a layer of cellular tissue in which are situated lymphatic capillaries communicating with the lymphatics of the liver. In severe infections of the gall-bladder, this cellular tissue is infiltrated and oedematous. It is continuous with that covering the pancreas.

Connective tissue holds the gall-bladder in intimate contact with the under-surface of the right lobe of the liver. The organ is further maintained in position by peritoneum covering fundus and under and lateral surfaces and continuous with the hepatic serosa.

The gall-bladder and bile-ducts are abundantly supplied with lymphatic vessels by which infection may be conveyed to and from the liver, to the head of the pancreas and to other neighboring or remote organs. Many of these lymphatics pass through a lymphatic gland situated at or near the neck of the gall-bladder. Some of the efferent lymphatic vessels empty in glands near the head of the pancreas, others in glands near the hepatic artery.

The cystic duct at its junction with the gall-bladder forms a sharp letter S-kink. In certain pathological states, so efficient is the valve-like obstruction formed by this kink that either the gall-bladder or the common duct can be overdistended to bursting without affecting the pressure in the other. The mucous membrane of the cystic duct is continuous with that of the gall-bladder; it differs from it by being thrown into numerous valve-like folds (leaflets), the valves of Heister.

Anomalies in the caliber, number, length, mode of union, distribution and anatomical relations of the regional blood-vessels and bile-ducts are not uncommon. To disregard them is to invite operative accidents.

As to the normal functional value and functions of this organ, there is a great difference of opinion. The bile undergoes in the gall-bladder modifications, physical and chemical, enabling it to better participate in the digestive processes. Normally the gall-bladder contains about 30 c.c. of bile; by virtue of the elasticity of its walls, it is capable of enlarging to a much greater capacity. It is an overflow chamber, a tension bulb, a safety-valve, as it were, protecting the liver cells from injury incident to excessive back pressure. Some clinicians claim that the most important function of this organ is to relieve pressure within the biliary ductal system.

The flow of bile into the duodenum is regulated by many factors. The rhythmic contractions of the gall-bladder, the respiratory movements, the milk action of the duodenal peristaltic waves, the passage of the acid chyme through the pyloric opening, and active digestion. The gall-bladder and ducts are squeezed between the liver and the intestines by the contractions of the diaphragm and of the abdominal respiratory muscles.

Under normal fasting conditions, the sphincter of Oddi, when normal in tone, controls the bile pressure in the ducts. With the passage of food from the stomach into the duodenum, the sphincter at the outlet of the common bile-duct relaxes, the gall-bladder contracts and the bile escapes into the intestine. As the sphincter of Oddi contracts, the gall-bladder relaxes reflexly and vice-versa (theory of contrary innervation).

The intra-duct bile pressure is dependent on the force of bile secretion and the resistance offered by the sphincter muscles at the ampulla of Vater. The liver secretes bile at about 300 mm. pressure of water and the maximal contracting force of the gall-bladder, when under stimulation by electricity, is only 313 mm. Thus, it is seen that the maximal force of contraction exerted by the gall-bladder on its contents does not exceed materially

the maximal normal intra-hepatic bile pressure.

The gall-bladder, owing to the poor development of its musculature, has low contractile or expulsive power; it cannot fully empty itself. Its smooth musculature has just enough tonus to prevent overdistention of the organ and cannot and does not exert any particular pulsative pressure upon its contents. Hypertrophy of the gall-bladder wall is not caused by and does not follow obstruction (continuous or intermittent, partial or complete) of the cystic or common duct. This is in sharp contrast to what occurs under analogous conditions in other smooth-muscled hollow viscera.

During fasting, the gall-bladder fills with bile, adds mucus to it, concentrates it, and otherwise modifies it. Gall-bladder bile is a thick, syrupy, viscid fluid having about eight times the consistency of common-duct bile. This concentration of bile is brought about largely through water abstraction by the lymphatic vessels.

The gall-bladder secretes mucus. "The mucus it produces reduces the chances of pancreatic and other complications"—Mayo. The bile from the hepatic duct being free of mucus can cause a more virulent pancreatitis than gall-bladder bile which, under normal conditions, always contains mucus.

Permanent dilatation of the bile-ducts and larger biliary radicles follows, as a rule, the permanent loss of gall-bladder function through atrophy, disease, such as long-continued chronic cholecystitis, distention of the gall-bladder with calculi, complete occlusion of cystic duct, etc., or removal of the gall-bladder. Animal experimentation, operative, post-operative and post-mortem findings have repeatedly confirmed the preceding statement. This dilatation is expressive of nature's effort to compensate for the loss of the gall-bladder. The stump of the cystic duct participates in this distention. That this permanent dilatation of the biliary ducts is of permanent harm to the individual has not been demonstrated. As a matter of fact, it presents no characteristic symptom-complex.

Though in some of the lower animals the gall-bladder is absent, though in man it is not a vital organ as evidenced by the many patients in whom its removal has not been followed by any serious disturbances, we are firmly convinced that it is an important organ and a factor in the well-being of the individual. The body, by its power of adaptation, compensates for the loss of the gall-bladder. If the bile-ducts are patent, if the flow of bile into the duodenum is free and unimpeded, cholecystectomy does not permanently impair health, does not interfere with nutrition, does not shorten life, but it has been noticed that in 60 to 70 per cent of cases in whom the gall-bladder has been removed, there is either a diminution or a suppression of the gastric secretion of HCl. In many of these cases, the HCl deficiency antedates the operation. I have patients whom I cholecystectomized over ten years ago and who have since been in normal health.

After removal of the gall-bladder, the biliary pressure equalizes or overcomes the resistance of the sphincter of Oddi. Bile secretion is more or less continuous and after a cholecystectomy its excretion into the duodenum is at first also more or less continuous and pure bile may appear in the stools (this is abnormal).

Next to the appendix vermiformis, the gall-bladder is the most frequent seat of abdominal morbidity. The intimate anatomical contacts and the close interrelationships (nervous, vascular, lymphatic) existing between the gall-bladder and biliary ducts and the contiguous abdominal organs determine in a large measure the incidence, progress and distribution of disease in this region, be the disease calculous, obstructive, inflammatory or neoplastic in nature.

Inflammatory processes (especially those of low virulence) of the gall-bladder may initiate and, in fact, are frequently associated with gall-stone formation. Cholelithiasis is most always preceded by or associated with an infective inflammation of the gall-bladder. Bacteria (staphylococci, streptococci, typhoid, paratyphoid, colon bacilli, etc.) have been found in biliary calculi, and have been found etiologically associated with cholecystitis. An infected gall-bladder is capable of receiving infection from and distributing infection to contiguous and remote organs. Chronic septic infection from the gall-bladder may cause infective arthritis, fibrositis (muscular rheumatism), to say nothing of the more remote but nevertheless important noxious effects upon the heart and blood-vessels. The gall-

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bladder may be reinfected; it may reinfect itself. Thus is explained, in many cases, the recurrence and persistence of symptoms.

Infective microorganisms migrate to the gall-bladder through the common and cystic ducts, through lymphatic vessels or through the blood stream (hepatic artery, cystic artery, portal system). Inflammation may spread to the gall-bladder by continuity of tissue—enteritis, duodenitis, choledochitis, cholecystitis; may spread to it by contiguity of tissue. Microbes gathered from the intestines by the portal system filter through the liver and may be carried in the bile to the gall-bladder via the hepatic and cystic ducts. Infection gaining entrance from the intestines into the portal circulation may reach the gall-bladder by means of the numerous lymphatic vessels that pass from the liver to the gall-bladder; may ascend from the duodenum through lymphatics in the walls of the common duct. Thus is explained the frequent coexistence of cholecystitis with appendicitis, with typhoid fever, with colitis and with suppurative hemorrhoids.

Enlargement of the lymph nodes along the common duct is good evidence of gall-bladder infection. "A seriously infected gall-bladder can not exist without evidence of infection in the glands which drain it." (W. J. Mayo).

The frequent coexistence and association of cholecystitis and choledochitis with an hepatitis most marked in the immediate neighborhood of the gall-bladder, with acute and chronic pancreatitis, is most always due to infection propagated by the lymphatic vessels. Many cases of pancreatitis follow cholelithiasis and cholecystitis. Cholecystitis may also be due to a direct extension of inflammation by way of the lymphatics from a liver already inflamed (Ewarts Graham). The not uncommon simultaneous occurrence of duodenal ulcers and cholecystitis furnishes further proof of lymphatic-borne infection. Some clinicians claim that 10 per cent of duodenal ulcers are accompanied by cholecystitis. Pyaemia excepted, every infection is a lymphangitis.

Bile stasis is a potential predisposing factor to gall-bladder disease and to gall-stone formation. Stagnant, stringy, viscid, tarry bile is evidence of pathology. Stasis is a factor in appendicitis, in inflammations of the urinary bladder, and apparently plays an analogous etiological role in inflammations of the gall-bladder. Stasis is more common in women because of pregnancy, tight clothing, constipation, sedentary life, lack of fresh air and exercise. Impairment of the elasticity, contractility or motility of the gall-bladder, partial or complete occlusion or obstruction of the bile-ducts impede the free flow of bile, predispose to bile-stagnation, to bile-concentration, to bile disintegration, increase the bile pressure and invite bacterial infection. Even those who attribute gall-stone formation to hypercholesterinaemia do not deny the etiological importance of stasis and infection.

Acute, subacute, chronic or recurrent inflammatory processes of the gall-bladder and bile-ducts are either local or diffuse. Gall-bladder disease is often merely part of an infection involving other organs in close proximity. Here, as elsewhere, infective inflammation (primary and secondary) spreads by continuity or contiguity of tissue, is transmitted through vascular or lymphatic channels and, gall-stone formation being excepted, resembles in inception, evolution, termination and sequelae infective inflammations occurring in other hollow viscera. The various pictures presented correspond to the different phases, to the different stages of inflammation. Each succeeding attack of cholecystitis causes additional degenerative changes in the already structurally altered gall-bladder. Grossly pathological gall-bladders are usually found in later life. Autopsy records, operative findings and clinical observations furnish abundant evidence of the very slow progression of most lesions of the biliary tract.

Gall-stones frequently accompany inflammatory (infective) processes of the gall-bladder and bile-ducts, are usually secondary to them, act like infected foreign bodies and play an important etiological role in the lodgment, persistence and transference of infection. "Gall-stones are found in approximately 70 per cent of all cases of gall-bladder disease" (Mayo). Though a by-product, they often initiate and more frequently keep up, complicate and aggravate gall-bladder disease. By their mechanical presence, they can cause tissue necrosis and perforation. Gall-stones vary in origin, shape, size, number, chemical composition and location. They may lodge and remain latent in the gall-bladder, may migrate down the cysticus and the common duct and then escape into the intestinal canal or may

become impacted in a diverticulum, in the neck of the gall-bladder or in any part of either the cystic or common duct. Impaction occurring after or unrelieved by a cholecystostomy produces a permanent mucus fistula. The persistence of an external mucus fistula may also be due to a stenosed or strictured cystic duct. A strictured or injured common duct may cause the persistence of an external biliary fistula. Calculous occlusion of the common duct causes temporary or permanent obstructive jaundice of gradual or sudden onset, leading, in some cases, to biliary cirrhosis. Stones in the hepatic ducts and in the liver are of unusual occurrence. Calculi lodging in the bile-ducts may cause, after a time, at point of arrest, pressure ulceration, scarring, cicatricial contraction and stricture. If the calculus or calculi lodge or become impacted in the cystic duct, there may ensue an intermittent or continuous hydrops or mucocele of the gall-bladder, or an acute or chronic empyema. In the absence of impacted calculi, hydrops fellae and empyema are due to inflammatory sequelae causing a complete stricture, compression, closure or occlusion of the cystic duct. Complete obstruction of the cystic duct results in distention of the gall-bladder by clear mucus without bile. The cystic duct may be obstructed by the direct mechanical pressure of an enlarged lymphatic gland.

Infections of the gall-bladder involve, simultaneously or successively, one, two or more of its coats. Usually they are mural, interstitial, deep-seated and, when virulent or long-continued, invariably produce permanent histological changes. The integrity of the mucous membrane, submucosa and muscularis may be seriously impaired. Pericholecystitis, more or less extensive, is frequent. Any inflammation of the gall-bladder may be complicated by a localized or diffuse peritonitis. In chronic cholecystitis, the gall-bladder is thickened, sclerosed, shrunken and embedded in adhesions; in rare cases, it is the seat of calcareous degeneration. Long-standing calculous occlusion of the common duct leads to a contracted gall-bladder in about 85 per cent of the cases (Courvoisier's law).

Inflammation proceeding to the stage of suppuration results either in an empyema, acute or chronic, a phlegmonous inflammation of the gall-bladder wall or a pericholecystic abscess. If an infected gall-bladder ruptures into the hepatic substance, a liver abscess results. Ulcerative inflammation, like gangrenous inflammation, is local or general and involves the gall-bladder wall in part or in its entirety. If ulceration or gangrene extend through the whole thickness of the gall-bladder wall, perforation, acute or chronic, occurs either into the free peritoneal cavity or, protective adhesions being present, into a neighboring hollow viscus. In the former case a diffuse peritonitis results; in the later, an internal biliary fistula ensues. "Perforation of the gall-bladder into the transverse colon or duodenum is not infrequent" (W. J. Mayo).

Pericholecystic adhesions are usually due to gall-bladder disease. They may bind the gall-bladder to the omentum, pylorus, duodenum, transverse colon, anterior abdominal wall, etc.; they may kink, twist, obstruct or compress the pylorus, the cystic or the common duct and when they impede the evacuation of the stomach and the easy filling and emptying of the gall-bladder, there results pain, digestive and other disturbances.

Inflammations of the bile-ducts that heal by scar formation lead to stenoses, to strictures. Cicatricial changes in the gall-bladder produce distention, deformity, sacculation, hour-glass contraction, fibrosis or atrophy of the organ.

The physiologic and pathologic relationships existing between the stomach, duodenum, head of pancreas, liver and the gall-bladder and bile-ducts influence, obscure the symptomatology of disease of this region and contribute to the uncertainties of early diagnosis. The clinician, despite the aid of a carefully elicited history and a judicious analysis of symptoms, is often unable to determine accurately previous to a laparotomy the extent and duration of gall-bladder involvement. As the clinical manifestations frequently do not correspond to the morbid anatomy present, and as many of the symptoms from which these patients suffer are reflex in origin, an exact diagnosis is often impossible previous to exposure of the seat of disease to inspection and palpation. Gall-bladder disease does not present a uniform clinical picture. The symptoms or signs are those of infection, inflammation, obstruction (calculous or non-calculous) and dysfunction, such as digestive disturbances, biliary dyspepsia, nausea, vomiting, belching, etc.—"Fair, fat and forty with belching" (Deaver).

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Adhesions resulting from acute or chronic pericholecystitis, pre- or post-operative in origin, may cause great distress, may impair the functional integrity and motility of the gall-bladder and surrounding organs; if omental, the pull on the greater curvature may be such as to render gastric peristalsis painful. Infective inflammation causes continuous, intermittent or paroxysmal pain which may be localized (biliary ache, dull pain in right hypochondrium) or radiating (biliary colic). Chills, fever, sweats, prostration, localized tenderness and rigidity over the gall-bladder region are always present in the acute stage. The different stages of inflammation—catarrhal, suppurative, ulcerative, gangrenous, fibrotic—are accompanied by their respective symptoms. Obstruction to the biliary flow causes jaundice, cholemia with its accompanying disturbances, pruritus, etc. Some of the symptoms of chronic gall-bladder disease are due to adhesions; many result from coincident or associated disease of the duodenum, liver, pancreas, etc.; others are caused by the diseased gall-bladder.

To arrive at well-founded conclusions, it is important: (a) To take a careful history and to make a complete physical examination. Keep in mind that gall-stones and gall-stone colic are not essential to the clinical picture of gall-bladder disease. Gall-stone formation is merely a frequent incident of gall-bladder infection. (b) To consider the roentgenological evidence. An affirmative roentgenological diagnosis is highly reliable. X-rays are able to visualize about 50 per cent of cases of cholelithiasis. Fluoroscopic and X-ray observation of the stomach and intestines prove serviceable by revealing the existence of adhesions and other unsuspected abnormalities. (c) To interpret intelligently and skilfully the physical signs elicited and the evidence furnished by cholecystography. The oral and intravenous method of dye-injection are both valuable. (d) To analyze the laboratory findings,—urine, blood, stomach contents, etc. They may furnish corroborative data. Non-surgical drainage of the bile tracts is a diagnostic procedure which has not yet come into general use. Its value is disputed by some.

Cholecystostomy and cholecystectomy have each their advocates and respective indications. The operator should adopt the type of operation best suited to the case at hand. He must individualize. The indications are to shorten the patient's convalescence, to hasten his return to health and to correct the existing pathology either by drainage or by more or less complete removal of foci of infection. Cases associated with much gross pathology tax the ingenuity of the surgeon. The degree of recovery secured is in direct proportion to the extent of pathology corrected.

The success or failure of an operation depends upon the degree of relief obtained, the results secured and the absence of unpleasant post-operative sequelae. It is only after the abdomen has been opened and the anatomical changes present have been ascertained that the surgeon, best judge of his patient's resistance, can intelligently select the appropriate operative procedure.

Ideal surgery calls for the conservation of organs. There should be no needless mutilation. We disapprove of the prophylactic removal of the gall-bladder,—the removal of an organ for conditions that may not occur. Cholecystectomy involving the sacrifice of an important organ is usually an operation not of election but of necessity. The small mimic gall-bladder, formed at times after removal of the real viscus, is not a regenerated gall-bladder but merely a distention of the stump of the former gall-bladder. It cannot perform the function of the parent organ. We believe that slight degrees of cholecystitis can resolve and the parts be restored to normal.

Surgical treatment should be instituted at the onset or in the early stages of gall-bladder disease, before the advent of such preventable complications as common duct obstruction (calculous or non-calculous), rupture of the gall-bladder into the free peritoneal cavity or into an adjacent viscus, various forms of pancreatitis, etc., before the pathology is so far advanced that restoration of normal function is doubtful. During the early period of disease, the operative difficulties are minimal, the mortality is practically negligible and improvement and cure easier of attainment. In the young, the percentage of recoveries is high; the operative mortality, very low.

When disease of the biliary tract is complicated by surgical disease of other abdominal or pelvic viscera, should the patient's condition not warrant a prolonged operation, the surgeon will do all that is consistent with the patient's

safety and defer further operative work to a more propitious time.

In diseases of the gall-bladder and bile-ducts, cholecystostomy is the operation of election:

1. In the aged, the feeble, the obese and in all patients whose general condition does not permit of more than the least amount of operating; in the presence of advanced cardio-vascular, advanced cardio-renal, advanced hepatic disease; in all cases in which a prolonged operation or an extensive dissection might be productive of severe shock or might cause death; in all critical cases, as an emergency operation, when great debility or other conditions, such as deep jaundice due to stone in the common duct, etc., necessitate haste and make cholecystectomy too dangerous or too prolonged an operation at that time. It is a good surgical principle not to subject patients to more than the minimal amount of trauma consistent with their general condition and the indications present. A very short incision immediately over the gall-bladder and the insertion into it of a drainage tube or gauze constitute almost a minor operation.

2. In cases associated with pregnancy.

3. In cases associated with pancreatic disease.

4. In all other patients in whom the existence of complications or disease of proximal organs make cholecystectomy too hazardous, too risky.

5. In deep jaundice, due to calculous or non-calculous occlusion of the common duct, or to its compression by adhesions, by the head of the pancreas, etc. Decompression of the liver by drainage with the minimal interference is indicated in deep jaundice; owing to the decreased coagulability of the blood there is great danger of fatal post-operative hemorrhage. In these patients the question of hepatic function must be seriously considered.

6. If the gall-bladder be very intimately adherent to the surrounding organs. Adhesions may so firmly glue the gall-bladder to surrounding structures that its removal necessitates the dissection of inflamed tissues and leaves raw surfaces, potential portals of infection. Duodenal and other intestinal fistulae have resulted from the separation of dense adhesions binding the gall-bladder to the gut.

7. In cholelithiasis, for the removal of gall-stones from any or all of the following locations: Gall-bladder, cystic or common duct, provided that the gall-bladder presents a normal appearance or is only slightly diseased and the cystic duct neither ulcerated nor strictured. The chief cause of relapse in gall-stone disease is the leaving behind of undetected stones. In the absence of valid contraindications, all gall-stones call for operative removal. Early removal of biliary sand and gall-stones has been advised as a prophylactic measure against malignancy.

8. In the early stages of cholecystitis, calculous or non-calculous, when the gall-bladder is but slightly altered and cystic duct is patulous, removal of stones and drainage may be followed by return of function and restoration of organ to normal structure. There are mild degrees of cholecystitis that do not produce thickening of the gall-bladder wall.

9. In acute pancreatitis complicating gall-bladder disease. The association of gall-stones and pancreatitis is variously given as between 50 and 65 per cent. Mayo reported that in 80 per cent of operations on the pancreas, there are lesions induced or accompanied by gall-stones.

10. In all cases, traumatic or pathologic, and in which there is imminent danger of post-operative stricture of the common duct, also in those in which a stricture being present, there is no hope of re-establishment of the patency and function of the common duct. In the presence of these conditions, the necessity of anastomosing the gall-bladder to the gut may be immediate or may arise at some future time. After a cholecystectomy, no short-circuiting operation between the gall-bladder and the gut is feasible.

11. In the course of all laparotomies in which you have not encountered infection, and the patient's condition warrants it, examine the gall-bladder. Palpation may reveal the presence of gall-stones. As in these cases the calculi have not caused marked symptoms and the gall-bladder wall usually presents a normal histological structure, cholecystostomy suffices.

12. In certain cases of cholangitis accompanied by icterus and enlargement of the liver and pancreas.

13. In certain cases of malignancy with obstructive jaundice due to carcinoma of the common duct or of the head of the pancreas. In these cases, if radium treatment be thought

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desirable, the gall-bladder can be used as an avenue for its application.

14. In all cases where temporary drainage of the gall-bladder and bile-ducts is indicated, —(a) presence of infected foci in the liver; and (b) to secure the expulsion of stones overlooked at time of operation. Drainage permits spontaneous discharge of small intrahepatic concrements as they pass downward to the extra-hepatic ducts.

15. In all cases where the mechanical difficulties incident to a cholecystectomy are great and make the operation extra-hazardous.

Convalescence after a successfully performed cholecystectomy is shorter, attended with less discomfort and less complicated than after cholecystostomy. The post-operative course is as uneventful as that of a salpingectomy for pyosalpinx. Following removal of the gall-bladder, recurrence of symptoms is uncommon and the percentage of cures is high; the danger of pericholecystic adhesions and mucous fistulae-formation is non-existent. One of the most valid objections to cholecystostomy is the frequency with which post-operative adhesions form after its performance. "In the Mayo Clinic, cholecystectomy is performed in more than 90 per cent of cases as against cholecystostomy in less than 10 per cent" (Mayo).

The disadvantages of cholecystectomy are: (a) It is difficult of execution. (b) It is not of universal application. The gall-bladder should never be removed unless one is certain that the common duct is patent. (c) It is attended with the danger of shock, hemorrhage, injuries to the common duct, to the duodenum, etc. (d) It has a slightly higher operative mortality than cholecystostomy. (e) It removes a useful organ, the functions of which we do not definitely know.

Cholecystectomy is the indicated operation if the patient's general condition permits:

1. In all localized or diffuse ultra-acute inflammatory conditions, ulcerative, gangrenous, phlegmonous or membranous cholecystitis. In all cases of cholecystitis in which the gall-bladder is so altered that, judged by gross evidence, "it can not come back."

2. In acute cholecystitis when the gall-bladder is very distended from blockage of the cystic duct.

3. In advanced chronic or repeated inflammations of the gall-bladder. When the organ is markedly thickened, contracted, atrophied, deformed, shrunken or adherent, and when it is evident that it cannot be restored to its normal condition, when it is evident that it is irretrievably lost or that the disease is progressive in nature as in fibrous or calcareous degeneration. In these cases, the elasticity of the gall-bladder wall is impaired or lost and its glandular secreting apparatus partly or wholly destroyed.

4. In a "strawberry" gall-bladder, the gall-bladder mucosa being covered with tiny beads.

5. In hydrops fellae due to blockage of the cystic duct, secondary to stricture or to impacted stone.

6. In empyema of the gall-bladder due to an impacted stone or strictured cystic duct.

7. For the cure of pathologic fistulae existing between the gall-bladder and a hollow viscus, if associated with disturbances calling for treatment.

8. For penetrating injuries, ruptures and perforations of the gall-bladder of either traumatic, calculous or inflammatory origin.

9. For mucous fistulae of the gall-bladder resulting from stricture or other obstruction of the cystic duct.

10. In chronic obstruction of the cystic duct whether due to stone impaction, scar-tissue formation, or torsion of the gall-bladder.

11. In irreparable injuries of the gall-bladder.

12. In volvulus of the gall-bladder.

13. In benign neoplasms of the gall-bladder.

14. In operable malignant neoplasms of the gall-bladder.

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Analyses, Selections, Etc.

Virginia Physicians Tell of Clinical Tour of Europe.

Dr. James W. Reed, of Norfolk, Va., in the *Virginian-Pilot* of July 18, 1926, gives the following interesting account of a visit by a party of American doctors to the clinic centers of Continental Europe. The tour was conducted by the Interstate Post-Graduate Assemblies of America, sponsored by the Mayo brothers, Crile and other eminent physicians and surgeons, and those eligible to go included any physician in good standing in his State or provincial society.

Thirty-four States and three provinces of Canada were represented in the party, which numbered 98 doctors and members of their families. In addition to Dr. Reed, those from Virginia included Dr. J. E. Rawls, of Suffolk; Mrs. I. E. Benderscheid, of Norfolk, and Dr. M. E. Hundley, and Rev. Chas. M. Wales, of Martinsville.

An account of the tour, as told by Dr. Reed, follows:

A Floating Clinic

"The party assembled in New York, April 26, and sailed for Cherbourg on the S. S. Aragusya, chartered by the Assembly. The voyage across was unique in the history of navigation: It was a floating clinic. Twice a day the after saloon was filled with enthusiasts eager to hear the numerous papers scheduled. The papers were limited to 20 minutes and followed by free discussion of shorter period.

"These sessions did much toward getting the men acquainted and setting forth the manner of men who made up the group. Sixty-five per cent of them were general practitioners, men of wide experience and shrewd judgment. The other 35 per cent were surgeons or specialists. The average level of medical accomplishment was very high. The eminent advisory board contributed prestige by the luster of their names. The atmosphere of the party exemplified American spirit at its best—a medical democracy, each member ready to give and take, none presuming a superiority. Perhaps the most profitable paper read was the scholarly account of the achievements and reminiscences of Sir William Osler, by Dr. Henry W. Cattell, of Washington, D. C. It was a fitting introduction to our tour. There was time, too, on the trip for the usual enjoyment of an ocean voyage, such deck entertainments as bridge, dancing and other social gatherings 'abaft the beam.'

Cherbourg and Normandy

"The party arrived at Cherbourg on May 1st and was taken by special train through Normandy, the apple blossom section of France, on to Paris, where the second assembly was formally opened. The Americans were graciously welcomed by one dignitary after another and then introduced to the scientific program which had been lavishly prepared by a committee headed by Dr. T. de Martel, the foremost surgeon of France.

"Each afternoon the party was scattered to attend clinics and demonstrations at the various medical shrines of Paris. The work in the

afternoon was always interrupted by the hour for tea, which afforded a grateful relaxation and an opportunity to meet informally the masters we had come to hear. The late afternoon was usually filled by a garden party or reception, and the evening entertainment included grand opera parties, sometimes followed by visits to the night clubs. The party left Paris with grateful appreciation for the cordial hospitality, official and individual, which had accompanied the rare medical program afforded it.

On to Rome

"From Paris the party journeyed southward through Lyons, Dijon, Marseilles, Nice, Monte Carlo, crossing the Italian frontier to Genoa, thence to Rome. While here the physicians were privileged to see that master surgeon, Dr. Raffaele Bastinaelli, operate. The party was received most graciously by the Pope and Premier Mussolini, the idol of Italy, and by U. S. Ambassador Fletcher and Mrs. Fletcher. Leaving Rome, we crossed the Apennines to Florence, Pisa, Bologna, Padua, and Milan, in which cities the Royal Universities offered unusual clinics in both medicine and surgery—and always we were accorded genuine hospitality. Particularly did we note with pleasure demonstrations by the internationally known orthopedic surgeon, Dr. Vittori Putti, of Bologna.

"Leaving Italy, we crossed the Italian frontier to Switzerland, the camping ground of American tourists. At Berne and Zurich we were received and entertained most elaborately by the faculties of the universites of these cities, and also by the president and state officials of Switzerland. The purpose of our visit having been accomplished we went to Germany. At Dresden we stopped for a visit to Raphael's 'Sistine Madonna.' Ours was the first delegation of its kind received in Munich and Berlin since the World War. Germany's most prominent professors spoke on the research work done in the past year, the results of which are not known to a majority of physians because the barriers created by the war kept scientists in different countries apart. The American physicians' trip did much to establish a close scientific contact.

Reception in Germany

"To celebrate a renewal of the world fraternity of science, President von Hindenburg, of Berlin, and the minister of science gave receptions at Potsdam palace in honor of the American medical men. Ambassador Schurman also gave a tea at the embassy for the party. At Munich we saw the renowned surgeon Sauerbruch do his famous chest surgery under spinal anaesthesia. No less appreciative was our group of the work of Dr. August Brier in surgery, Dr. Heinrich Finkelstein and Dr. Adelbert Czerny in pediatrics, and of Dr. Friedrich Kraus and Dr. Wilhelm His in medicine.

"Our stay in Austria was at the renowned medical center, Vienna, high in medical and surgical tradition. It was our good fortune to spend several days in the clinics of Dr. Lorenz, the European genius in bloodless surgery; Dr. Fuchs, the world's greatest ophthalmologist; Dr. Anton Eiselberg, dean of the University of Vienna; Dr. von Pirquet, and Dr. Mall in pediatrics. No less instructive were Dr. Graff's lectures and bedside demonstrations in obstetrics. The intensive work done here was of special value, as every physician knows. The greatest medical opportunities possible were given. We were also received here by President Hainisch, of Austria, and by officials of the municipality of Vienna, including the American ambassador.

Welcomed in Prague

"In Prague, the Czechoslovakian capital, we were accorded a most gracious welcome. Here the physicians were the guests of the Imperial Royal German Charles Ferdinand University and the Imperial Royal Czech Charles Ferdinand University, both of which maintain a comprehensive group of medical institutes and clinics. While here the party wes received by the president of Czechoslovakia at his palace—formerly the Royal Palace of Emperor Francis Josef—and was the guest of the government on a trip to Carlsbad and Joachina valley mines, containing the largest known deposit of radium in the world. From here we visited the Netherlands, Amsterdam being our first clinical city, which proved of great scientific value as a goodly number of the professors spoke English fluently. There were elaborate entertainments, including a reception at the palatial home of Baron von Bosch, whose good fortune it was to have an American wife. While here we were guests of the municipal

government in a trip to the Island of Marken, Muerendam and to Vallendam.

Utrecht, Leyden and The Hague had much to offer in clinics and entertainments. At The Hague our party stopped at the famous Scheveningen Beach. We also visited the peace palace, where The Hague conference was held. At Brussels the party was received by the King and Queen of Belgium, and the clinics were no less interesting than those visited in other countries. At this point the party disbanded; some to pursue their travels further and some to return home immediately, but all convinced that their outlook had been broadened and their wits sharpened by going out to see how things are done elsewhere."

Dr. J. E. Rawls, of Suffolk, Va., a member of the same party, in a letter to this office from Brussels, Belgium, says:

"On June 26, 1926, in Brussels the Interstate Post-Graduate Assembly completed its European tour. Three-fourths of the party have sailed, or are sailing, for their respective homes. The remainder are taking extensions to the British Isles. The writer will visit England, Scotland, and Ireland, sailing for the States July 16th and arriving home July 26th.

"The following information will probably be of general interest. The State of Pennsylvania had the largest representation of any other State. Virginia had three doctors, Jas. W. Reed, of Norfolk, M. E. Hundley, of Martinsville, and the writer. Drs. Reed and Hundley are happy fellows of sterling character, men of professional ability and were deeply interested in the clinical work abroad.

"The number of miles traveled was approximately 6,400 by sea and 3,755 by land. Eight countries were visited. There were approximately 360 clinics and demonstrations and forty-eight social events, among which were receptions by King Albert and Queen Elizabeth, of Belgium, several American ambassadors, and a number of municipal and university receptions.

"The general clinical work, especially the surgical in which the writer was especially interested, was, as a rule, of the highest order, showing surgical judgment and skilled technique. To witness so many operate with their special unique methods was interesting, instructive and inspiring.

"It can be truly said that the Interstate Post-Graduate European Assembly afforded a rare opportunity for the physician."

The above account and letter proved of so much interest to us, that we have taken the liberty of presenting them to our readers.

The Causes of Cicatricial Contraction.

In a paper on the above subject, read by J. Shelton Horsley, M. D., of Richmond, Va., before the American Surgical Association at Detroit, May 24, 1926, the author called attention to the fact that:

In surgical literature there has occurred the statement that defects in the common bile duct or the ureter would be satisfactorily repaired if the epithelium would cover the defect, and treatment along this line has been instituted. Most strictures, however, have an epithelial covering. Contractions of the neck following burns have a practically normal epidermis. A histologic study of the epidermis and of the connective tissue in cicatricial contractions of the neck, and of the connective tissue in scirrhous cancer of the breast, in malignant stricture of the bowel, and in cirrhosis of the liver, was made. There appears to be no essential difference from a histologic standpoint between contracting scar tissue and non-contracting scar tissue. Indeed, both of these resemble very closely normal connective tissue as found in the corium and elsewhere.

The origin of connective tissue and of scar tissue is discussed. Baitsell's researches seem to show that connective tissue in the chick embryo and the amphibian originates from a transparent cell-free ground-substance which later becomes fibrillated. H. E. Jordan, of the University of Virginia, thinks that the fibroblasts which develop in the scar tissue from granulation tissue come chiefly from lymphocytes, but to some extent from fixed connective tissue cells and from endothelial cells.

Scar tissue, a type of connective tissue, is a lowly tissue, and requires less nutrition than the more highly differentiated tissues. Consequently, when nutrition is too poor to sustain highly differentiated cells, connective tissue may dominate.

The following classification is given for the causes of cicatricial contraction:

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1. Direct Causes of Cicatricial Contraction —Toxic Products Produced By:

a. Burns (by heat, light, or electricity).
b. Chemicals.
c. Bacteria.
d. Cancer.
e. Trauma and cells affected by lack of blood supply.
f. X-ray or radium.

2. Indirect Causes

a. The general disposition of the individual toward scar tissue formation.

b. The portion of the body affected.

c. The absence of strain or tension on the scar.

d. Lack of proper blood supply.

e. The absence of natural resistance toward physiologic secretions or excretions.

f. The quantity of scar tissue.

Each of these causes is discussed. The conclusions are as follows:

1. Cicatricial contraction is due to scar tissue, and covering the surface of a wound with epithelium alone does not prevent contraction except so far as it prevents infection or unnecessary trauma to a raw surface.

2. The cicatricial contraction following X-ray or radium burns differs from other scars in that the deeply penetrating rays cause an overgrowth of vascular endothelium which partially or completely obliterates the blood vessels and makes a greater degree of ischemia.

3. Thre is a biologic resistance possessed by tissues of the body to the normal secretions or excretions of their environment, so that in transplanting tissue this must be taken into consideration.

4. Certain regions of the body, possibly because of some inherent quality or possibly because of mechanical conditions which retard complete extension, are more prone to scar tissue contraction than other regions.

5. As scar tissue is a lowly tissue that can survive on less nutrition and under harder conditions than more highly differentiated tissues, it seems essential in avoiding cicatricial contraction not only to prevent the irritating effects of frequent injuries or of toxic substances, but to provide a blood supply so that the higher tissues may survive and not be overwhelmed by scar tissue.

The County Society

For Better Acquaintance.

With a view to arousing and maintaining interest in the COUNTY SOCIETY, it is requested that, as far as possible, every county in the State should have a county society.

Any county with three or more eligible physicians may organize and apply for a charter from the State Society, thus securing the privilege of representation in the House of Delegates of the State Society at its annual meetings.

Only one component society shall be organized in any county.

County societies which have been inactive should re-organize. Upon request, your Councilor, the President or Secretary of the State Society will help in any way possible.

Inquiries addressed to the MEDICAL SOCIETY OF VIRGINIA, 104½ West Grace Street, Richmond, will have prompt attention.

Do you know that fellowship in the American Medical Association, the largest association of its kind in the world, is dependent upon membership in your State Society, and that membership in your State Society is dependent upon membership in your County Society?

Each County Society shall have general jurisdiction over the medical matters in the County.

Dues in the State Society are five dollars a year, the fiscal year beginning January 1. Without other charge, members receive the "Virginia Medical Monthly," official organ of the Society, and legal defense if sued for alleged civil malpractice.

Members of inactive County Societies! Are you giving "the stranger within your gates" a square deal? You are a member of your State Society. He may only join through his County Society and you do not give him this opportunity, if you fail to have meetings and do not invite him to join with you.

Chartered societies which have not been holding meetings are urged to arrange to get together, re-organize, elect officers, delegates and alternates to the State Society meeting, and take in all eligible doctors in their counties.

If doctors in any county can not arouse activity among themselves, band with an adjoining county which is active, and apply to the Executive Council to have your charters changed to include two or more counties by hyphenating the names.

It is only by co-operation that we can succeed in any undertaking. Let each individual member of the Medical Society of Virginia do his or her part.

Womans Auxiliary

To the Medical Society of Virginia

At the request of the officers of the Auxiliary, this space has been set aside for communications from them regarding matters of interest, both to the profession and to the women members of their families.

All communications should be addressed to Mrs. E. F. Truitt, Secretary, Westover Avenue, Norfolk, Virginia.

The Norfolk Meeting

It is earnestly desired that the women members of the doctors' families will attend the October meeting of the State Society "en masse."

Everything possible will be done to make their visit enjoyable. In addition to the usual social affairs, there are many attractive and historic points to be visited. Hard surface roads make them all easy of access.

A short tour would take in Cape Henry, where the first permanent English settlers landed in 1607; Jamestown Island where the party settled; Williamsburg where the first government in this country was founded; and Yorktown where Cornwallis surrendered to General Washington.

Each of these shrines is filled with all kinds of interesting relics, the most valuable in this country.

Norfolk itself offers many points of interest, and the various beaches will be most attractive in October, the great developments at Virginia Beach being especially interesting.

Every woman attending the meeting is expected and urged to take part in the sessions of the Woman's Auxiliary, which will still give her ample time to see the sights, visit the places of amusement and shop!

A cordial and pressing invitation is extended to each and every one of you.

Miscellaneous

Proposed Constitution and By-Laws for the Medical Society of Virginia.

To the Members of the Medical Society of Virginia:

The Executive Council of the Medical Society of Virginia appointed the undersigned committee for the purpose of making a study of the present needs of this Society and recommending a revision in the Constitution and By-laws to meet such needs. As a result of its work, the Committee submits the changes in the Constitution and By-laws given in the following copy.

These proposed changes are presented and published in order that they may be considered and voted on at the next annual session of the Society. It is hoped that each member of the Society will read these proposed changes before the annual session. It is also hoped that members will make suggestions or amendments to these proposed changes, if in that way they can be improved.

Respectfully submitted,

Committee: E. L. Kendig, *Chairman*,
F. H. Smith,
C. R. Grandy.

CONSTITUTION

Constitution of the Medical Society of Virginia, incorporated by an act of the General Assembly of Virginia, approved January 14, 1871.

Article I.—Title

The name of this organization shall be the Medical Society of Virginia. The words "the Society" in this Constitution and its by-laws shall be construed to mean "the Medical Society of Virginia."

Article II.—Purposes

The purposes of the Society are to promote the science and art of medicine, the protection of public health, and the betterment of the medical profession.

Article III.—Component Societies

The State shall be divided into component societies of one or more counties.

Article IV.—Composition of the Society

White physicians in Virginia, not practicing Sectarian Medicine, are eligible to active membership. Provision may be made for associate membership.

Article V.—House of Delegates

The House of Delegates shall be the business and legislative body of the Society, and its membership shall consist of the President, the President-elect, and Delegates elected by the component societies.

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Article VI.—Council

The council shall be the executive and finance committee of the House of Delegates, and shall have charge of the business affairs of the Society when the House of Delegates is not in session. The council shall consist of the President, President-elect, and one member from each Congressional district of the State, elected by the House of Delegates from the membership of the House.

Article VII.—Officers

The officers of the Society shall be a President, a President-Elect, and an Executive Secretary-Treasurer. The office of Executive Secretary-Treasurer may be held by a non-member.

Article VIII.—Standing Committees

The Standing Committees of the Society shall be: (1) Scientific Work, (2) Public Policy and Public Health, (3) Program and Publication, (4) Medical Defense and Medical Economics, (5) Medical Education and Hospitals, (6) Membership, (7) Ethics and Judiciary.

Article IX.—Terms of Officers

The President, President-elect, the Executive Secretary-Treasurer, the Councilors, and the Standing Committeemen shall be selected during the annual session. They will begin service at the adjournment of such annual session and continue until the end of the term, or until a successor qualifies. The term of the officers and standing committeemen shall be one year. The term of councilors shall be two years.

Article X.—Annual Session

There shall be an annual session of the Society and the date shall be determined by the House of Delegates.

Article XI.—Funds

Funds for the Society may be raised by a per capita assessment, voluntary contributions and other business activities. The funds shall be expended to carry out the general purposes of the Society.

Article XII.—Referendum

A general meeting of the Society or the House of Delegates may order a referendum on any matter. Such referendum shall be taken by a well advertised general meeting of the Society and one hundred members shall be necessary for a quorum. The results of the referendum shall be final.

Article XIII.—Seal

The Society shall have a common seal. The power to change or renew the seal shall rest with the House of Delegates.

Article XIV.—By-Laws

The Society may adopt by-laws not in conflict with this constitution.

Article XV.—Amendments

This constitution may be amended at an annual session by a two-thirds vote of the House of Delegates, provided such amendment is previously published in the official publication of the Society. All previous constitutions of the Society are repealed when this constitution is adopted and put into effect.

Article XVI.—When in Force

This constitution shall be in force in such manner and at such time within one year as the general meeting adopting the same may determine.

BY-LAWS

By-laws of the Medical Society of Virginia, incorporated by an act of the General Assembly of Virginia, approved January 14, 1871.

Article I.—Membership

Section 1.—Members of the Society are classified as active and associate. Members in good standing in a component society constitute the active membership of the Society. Those, not members of a component society, constitute the associate membership. Members of the Society at the time of the adoption of these by-laws will retain membership in the Society, and, as herein provided, be automatically classified as active and associate members.

Section 2.—The privileges of voting, holding office, and serving on committees is limited to the active membership. In all other respects the status of the active and associate members is the same.

Section 3.—Members living out of the jurisdiction of a component society are classified as associate members. Active members, who move out of the State, become associate members of the Society. Teachers of the Sciences

allied to Medicine and physicians living a part of the time in the State may, upon recommendation of the Membership Committee, be elected to associate membership by the House of Delegates. Associate members may resign membership by giving notice to the Executive Secretary-Treasurer, or, on recommendation of the Ethics and Judiciary Committee, be suspended or expelled by the House of Delegates for sufficient cause. Any associate member, eligible to membership in a component society, may be required by the council to make application for membership in such component society.

Section 4.—For long, faithful or distinguished service, the House of Delegates, upon the recommendation of the membership committee, may elect annually two resident members and one non-resident physician to honorary active or associate membership.

Section 5.—Every member, after verification of membership from the rolls, shall register before taking part in any of the proceedings of the annual session. All guests are requested to register.

Section 6.—Only active members in good standing in a component society and associate members in like standing in the State organization shall be entitled to the rights and benefits of the Society. No member shall be entitled to the rights and benefits of the Society who has not paid the initiatory annual per capita assessment or who is delinquent for more than one year in the payment of subsequent assessments.

Article II.—General Meetings

Section 1.—The general meetings of the Society are open to all registered members and guests.

Section 2.—At each annual session there shall be an address by the President and not more than three orations by invited guests.

Section 3.—With the exception of the address by the president and invited guests, no address, paper, or other contributions on the program shall be longer than twenty minutes.

Section 4.—The privilege of the floor belongs to members and invited guests.

Section 5.—No one shall discuss a paper more than once and then for only five minutes.

Section 6.—No contribution shall appear in the program unless the title is sent to the Executive Secretary-Treasurer at least five weeks before the annual session.

Section 7.—If the author is not present when a paper is called, it shall be placed at the end of that section of the program.

Section 8.—All papers and contributions are the property of the Society and cannot be published elsewhere without the consent of the Publication Committee.

Section 9.—The scientific work of the Society may be divided into two or more sections.

Section 10.—A rule governing the program or conduct of a general meeting may be changed only by a two-thirds vote of the members present.

Section 11.—At a general meeting before the close of the annual session, a report of the transactions of the House of Delegates shall be received.

Article III.—House of Delegates

Section 1.—The House of Delegates shall be the business and legislative body of the Society.

Section 2.—The meetings of the House of Delegates shall be during the annual session.

Section 3.—Each component society shall elect annually to membership in the House of Delegates one delegate and one alternate for each fifty members or major fraction thereof, or as the component society may elect, one delegate and one alternate for each county in such component society. In any event, each component society is entitled to at least one delegate and one alternate in the House of Delegates. The President and the President-elect shall be ex-officio members of the House of Delegates. When the House of Delegates elects one of its members to membership on the Council, such delegate will automatically continue as one of the allotted representatives of his component society in the House of Delegates until the end of his term as Councilor.

Section 4.—The House of Delegates shall have one regular meeting during the annual session and may have such other meetings as necessity may require.

Section 5.—Twenty delegates, representing at least ten component societies, shall constitute a quorum of the House of Delegates.

Section 6.—The President shall preside over the meetings of the House of Delegates. The Excutive Secretary-Treasurer shall be the Secretary.

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Section 7.—The House of Delegates shall determine the eligibility of its own members. The president may appoint a committee on credentials, if the eligibility of any member is contested.

Section 8.—The House of Delegates shall elect officers of this Society as provided for in Article IV. of the By-laws.

Section 9.—The House of Delegates shall elect delegates and alternates to the House of Delegates of the American Medical Association in accordance with the constitution and by-laws of that body. Such delegates shall be elected by ballot. On the ballot each member will be allowed to vote for as many of the nominees as there are delegates and alternates to be elected. Those receiving the highest votes will be declared elected as delegates and those receiving the next highest votes will be declared elected as alternates.

Section 10.—The House of Delegates shall nominate to the Governor of Virginia at the proper time in accordance with the laws of Virginia, members of the State Board of Medical Examiners, and such nomination shall be made by ballot in the same manner as officers are elected.

Section 11.—At each annual session, the House of Delegates shall consider budget recommendations from the council, and using this recommendation as a basis, adopt a budget for the Society for the next fiscal year. This budget shall be based on the expected income and expenditures during this period.

Section 12.—The House of Delegates, upon recommendation of the Council, may revoke the charter of a component society for violation of the laws of the Society.

Section 13.—The House of Delegates may appoint special committees from its own membership or from the membership of the Society.

Section 14.—All resolutions and memorials issued in the name of the Society must be authorized by the House of Delegates.

Section 15.—All officers and delegates elected, all nominations made to the Governor and a "resume" of all other business transactions by the House of Delegates during the previous twelve months shall be reported to the Society at a general meeting before the close of the annual session.

ARTICLE IV.—ELECTION OF OFFICERS

Section 1.—The House of Delegates, at its first meeting of the annual session, may elect a Committee on Nominations, consisting of one member from each Congressional District. This Committee shall report to the House of Delegates the result of its deliberation in the form of a ticket containing the names of one or more members for each of the offices to be filled at the annual session. If such Committee is elected, any member of the House of Delegates shall have the privilege of adding one or more names to any of the nominations. The election of officers shall be by ballot. A majority vote is necessary for election. The lowest nominee will be dropped on each ballot until one receives a majority vote. In case of a tie, it will be decided by lot.

Section 2.—No person is eligible for office who has solicited votes for any office for a period of two years.

Section 3.—Only active members in good standing are eligible to office.

Section 4.—The House of Delegates shall at each annual session elect a President-elect for a term of one year. At the end of this term the President-elect automatically becomes President for a term of one year.

Section 5.—The House of Delegates shall at each annual session elect an Executive Secretary-Treasurer for a term of one year.

Section 6.—The House of Delegates shall at each annual session elect, for a term of two years, councilors from the odd numbered Congressional Districts on the odd years and from the even numbered Congressional Districts on the even years. At this time the House of Delegates shall also fill any vacancy in the membership of the Council.

Section 7.—In case there is a vacancy in the office of President-elect, or in case the President-elect was appointed pro tempore by the Council, the House of Delegates at the annual session shall also elect a President for the following term.

ARTICLE V.—DUTIES OF OFFICERS

Section 1.—The President shall be the executive head of the Society.

Section 2.—The President shall be the presiding officer of the general meetings of the Society, president of the House of Delegates, chairman of the Council, and ex-officio member of all Committees. The President shall

vote in the general meetings, in the House of Delegates, and in the Council only in case of a tie. If it is so that the President or the President-elect cannot be present, the President shall appoint a member to preside over the general meeting, the House of Delegates, and the Council. If such appointment is not made, the members present may select the presiding officer.

Section 3.—The President shall deliver the annual oration and shall have the privilege of inviting as many as three orators at the annual session.

Section 4.—The President shall at the annual session, before he assumes the duties of this office, appoint all standing committees and announcement of the personnel of these committees shall be made at the general meeting when the House of Delegates makes its report.

Section 5.—The President shall fill any vacancy in the Council, delegates to the American Medical Association, and standing committees, and such appointments shall stand until the end of the next annual session.

Section 6.—The President-elect shall be an ex-officio member of the House of Delegates and an ex-officio member of the Council. The President-elect shall act for the president in his absence or disability, and shall automatically succeed to the presidency at the end of the term or sooner if vacancy occurs.

Section 7.—The Executive Secretary-Treasurer shall be the executive agent of the Society. The Executive Secretary-Treasurer shall be the Secretary of the general meetings, secretary of the House of Delegates, secretary of the Council, and general manager of the official publication of the Society.

Section 8.—The Executive Secretary-Treasurer shall be the custodian of all property of the Society, provide for registration of members at general meetings, keep a card index of members, conduct the general correspondence of the Society, and with the consent of the Council employ necessary assistance.

Section 9.—The Executive Secretary-Treasurer shall collect all money due the Society and pay out these funds upon written order of the President, or upon his designated authority. The Executive Secretary-Treasurer shall give a bond approved by the Council.

Section 10.—The Executive Secretary-Treasurer shall mail notices to members two months before the annual session asking for papers and shall, under the direction of the program and publication committee, make off and send to each member a program of the annual session.

Section 11.—At each annual session the Executive Secretary-Treasurer shall make a complete yearly report to the House of Delegates.

Article VI.—Council

Section 1.—The Council shall consist of the President, President-elect and one member from each Congressional District, elected as provided in Section 6, Article IV of the by-laws. The Council shall be the executive and finance committee of the House of Delegates and shall have charge of the business affairs of the Society when the House of Delegates is not in session. The President shall be the Chairman of the Council and the Executive Secretary-Treasurer shall be the Secretary.

Section 2.—Each district Councilor shall be the organizer, peacemaker, and censor for his district. A district councilor shall visit each component society in the district once each year.

Section 3.—Four members of the Council shall make a quorum. Actual expenses may be paid members, attending meetings of the Council in the interim between the annual sessions.

Section 4.—The Council shall submit to the House of Delegates at its first meeting of the annual session a proposed budget for the next year. All salaries paid by the Society are to be fixed by the Council.

Section 5.—The Council shall be charged with the duty of organizing the whole State into component societies and at each annual session shall report on this work to the House of Delegates with recommendations. The Council shall recommend to the House of Delegates the revocation of a charter of a component society when such component society flagrantly breaks the rules of the society.

Section 6.—The Council shall provide offices for the Society headquarters.

Section 7.—The Council shall make diligent efforts to collect past due per capita assessments.

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ARTICLE VII.—STANDING COMMITTEES

Section 1.—The Standing Committees of the Society shall be as follows:

1. Scientific Work,
2. Public Policy and Public Health,
3. Program and Publication,
4. Medical Defense and Medical Economics,
5. Medical Education and Hospitals,
6. Membership,
7. Ethics and Judiciary.

Each of these committees shall be composed of five members and the president ex-officio. They shall be appointed by the president as provided in Section 4, Article V of the By-laws, and the first named shall be chairman.

Section 2.—The Committee on Scientific Work shall have charge of the scientific exhibits of the Society. The object of this Committee is to stimulate interest in scientific and research work among the members of the Society.

Section 3.—The Committee on Public Policy and Public Health shall endeavor to secure and enforce legislation in the interest of public health and scientific medicine. This Committee shall co-operate with any like Committee appointed from the component societies.

Section 4.—The Committee on Program and Publication shall have made up the program for the annual session. This Committee shall elect an editor and conduct the affairs of the official publication of the Society. Such affairs shall be handled according to the expressed policy and the adopted budget of the Society.

Section 5.—The Committee on Medical Defense and Medical Economics shall have charge of the medical defense of members. All expenditures of funds for this purpose must be authorized by the House of Delegates or the Council. The Committee shall make a study and submit recommendations to the House of Delegates on matters of medical economics.

Section 6.—The Committee on Medical Education and Hospitals shall endeavor to bring about co-operation of the Society with the medical schools and hospitals of the State in order to maintain the best standards in these institutions and thereby assist in the growth and development of medical science in the State.

Section 7.—The Committee on membership shall pass upon applications for membership of those not members of a component society and make recommendations for honorary membership. The Committee shall also, through co-operation with the component societies, prepare proper obituaries for deceased members. All actions of the committee shall be reported to the House of Delegates.

Section 8.—The Committee on ethics and judiciary shall consider all matters involving ethics and conduct of members on appeal from the component societies and prima facie in cases not under the jurisdiction of a component society. The committee shall make recommendations in such cases to the House of Delegates.

ARTICLE VIII.—DUES AND ASSESSMENTS

Section 1.—There shall be an annual assessment of $5.00 upon each member. This may be changed by the House of Delegates. The annual dues shall be assessed at the rate of $1.25 per quarter or major fraction thereof. The dues for each calendar year shall be paid in one payment and are payable before December 31st of each year.

Section 2.—The fiscal year of the Society shall correspond with the calendar year.

Section 3.—The Council is charged with the duty of collecting or adjusting past due per capita assessments. A member, whose dues are twelve months in arrears, shall be automatically dropped from the rolls of the Society. For good reason the Council may excuse a member for such delinquency or may reinstate such member upon the payment of all or a part of such past due assessments.

Section 4.—Honorary members and others deserving it may be exempted from the payment of annual dues by the Council. Any member over 70 years of age may be so exempted by the Executive Secretary-Treasurer.

ARTICLE IX.—THE OFFICIAL PUBLICATION

The official publication of the Society shall be known as the VIRGINIA MEDICAL MONTHLY.

ARTICLE X.—CO-OPERATIVE MEASURES

Section 1.—The House of Delegates may provide for medical defense and add a per capita assessment to meet the expense of same.

Section 2.—The House of Delegates may adopt any sound and ethical group business measure beneficial to the Society, provided it is optional to individual members.

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Article XI.—Component Societies

Section 1.—The component societies shall be those holding charters from the Society. All component county societies holding charters at the time of the adoption of these by-laws will retain such charters as component societies.

Section 2.—There shall be only one component society in a county. A component society may embrace one or more counties. The name of a component society must in some way suggest its locality.

Section 3.—The Council shall endeavor to organize into component societies all the counties of the State. At each annual session the Council shall report to the House of Delegates the unorganized counties and recommend a plan for organizing each of such counties into a component society. The House of Delegates may direct the Council to make further effort to organize such a county or it may assign an unorganized county to a nearby component society. Such assignment cannot be made to a component society unless agreed to by the representatives of that component society in the House of Delegates.

Section 4.—A component society consisting of two or more counties may upon petition to the Council be divided and given separate charters, if the Council is of the opinion that such division is in the interest of medical organization.

Section 5.—Each component society shall judge the qualification of its own members.

Section 6.—The component society shall drop from its rolls a member whose license to practice medicine in the State has been revoked or whose membership in the State Society has been lost for non-payment of dues.

Section 7.—A member expelled by a component society can appeal to the State Society through the Ethics and Judiciary Committee.

Section 8.—A member may join a more convenient component society in an adjoining county, provided the component society of the county in which such member resides gives its consent.

Section 9.—A member moving from a county of one component society to the county of another may get a certificate of membership. This certificate shall be used in applying for membership in the component society to which such member is moving. Pending acceptance or rejection of such application, membership will be retained in the original component society.

Section 10.—Each component society will send to each annual meeting of the Society, its number of delegates and alternates fixed by Section 3, Article III of the by-laws.

Section 11.—The Secretary of each component society shall keep a roster of its members, including name, address, year of graduation, college, date of State license, and such other information as may be desired by the Society.

Section 12.—Each component society shall appoint one member as an auxiliary to the State Committee on Public Policy and Public Health.

Section 13.—The component societies shall co-operate with the officers of the State Society to carry out the plans, laws, and purposes of this organization.

Article XII.—Principles

The ethical principles governing the members of the American Medical Association shall govern this Society.

Article XIII.—Rules of Order

The deliberations of this Society shall be conducted in accordance with parliamentary usage as defined in Roberts Rules of order.

Article XIV.—Amendments

These by-laws may be amended by a two-thirds vote of the House of Delegates, provided such amendment is proposed in writing and has laid on the table for one day. All previous by-laws of this Society are repealed when these by-laws are adopted and put into effect.

Article XV.—When in Force

These by-laws shall be in force in such manner and at such time within one year as the general meeting adopting same shall determine.

The Truth About Medicine

In addition to the articles enumerated in our letter of May 29th, the following have been accepted:

Armour & Company
Pituitary Liquid (Surgical)-Armour
Ampules Pituitary Liquid (Surgical)-Armour 1 c.c.

Parke, Davis & Company
Pertussis Immunogen
Pneumococcus Immunogen
Silvol Dougies 5 Per Cent
Silvol Ointment 5 Per Cent
Vaginal Suppositories Silvol 5 Per Cent

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Powers-Weightman-Rosengarten Company
Calcium Phosphate Tribasic—P. W. R.
Magnesium Phosphate Tribasic—P. W. R.
Nonproprietary Articles
Tribasic Calcium Phosphate
Tribasic Magnesium Phosphate

NEW AND NON-OFFICIAL REMEDIES

Isacen.—Diacetyldioxyphenylisatin. The diacetyl derivative of dihydroxyphenylisatin. Isacen passes through the stomach unchanged: when it reaches the intestine, a gradual splitting off of dioxyphenylisatin takes place under the influence of the alkaline content of the intestine. The dioxyphenylisatin thus produced is stated to be non-toxic, not to be absorbed, and to be excreted entirely through the feces. Isacen acts as a laxative or purgative, depending on the dosage employed. It is supplied in the form of tablets, containing 0.005 Gm. Hoffman-LaRoche Chemical Works, New York. (Jour. A. M. A., June 5, 1926, p. 1769).

Digitalis Dispert.—An extract of digitalis, obtained by extraction of digitalis leaves with cold water and evaporation of the extraction by a special process. It is standardized by the minimum lethal dose frog method of Straub so that 1 Gm. represents 1,900 lethal frog doses. Digitalis dispert has the actions and uses of digitalis. The product is marketed in the form of 0.8 Gm. tablets. Schering & Glatz, Inc., New York.

Pertussis Immunogen.—A bacterial antigen obtained by agitating live pertussis bacilli with physiological solution of sodium chloride and separating the liquid from the organisms; the extract is free or nearly free from bacterial cells and toxin. There is some evidence that this material will yield approximately the same results as the ordinary pertussis bacillus vaccine (New and Non-official Remedies, 1925, p. 354). The product is marketed in 10 c.c. vials. Parke, Davis & Co., Detroit.

Pneumococcus Immunogen.—A bacterial antigen, obtained by agitating live pneumococci (Types I, II and III) with physiological solution of sodium chloride and separating the liquid from the organisms; the extract is free or nearly free from bacterial cells and toxin. There is some evidence that this material will yield approximately the same results as the ordinary pneumococcus vaccine (New and Non-official Remedies, 1925, p. 355). The product is marketed in 10 c.c. vials. Parke, Davis & Co., Detroit. (Jour. A. M. A., June 19, 1926, p. 1911).

PROPAGANDA FOR REFORM

Allonal Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Allonal is a preparation containing a combination of allylisopropyl barbituric acid and amidopyrine mixed with free allylisopropyl barbituric acid and an excess of amidopyrine. The combination between allylisopropyl barbituric acid and amidopyrine is readily decomposed into its components, and the firm's claims are based on the assumption that Allonal contains these two ingredients. The claim is made that allyliosopropyl barbituric acid, "the new and distinctive component," possesses a greater hypnotic power than any of the other well known hypnotics of the barbituric acid series, but that it is relatively less toxic. The Council finds that the evidence cited by the firm does not substantiate this claim, and concludes that Allonal must be considered as the result of an effort to combine in one preparation the hypnotic properties of a member of the barbituric acid series and the analgesic properties of amidopyrine. The firm publishes long lists of conditions said to have been relieved by this combination, the only individualization being the recommendation of "1 to 2 tablets" for some and of "2 to 4 tablets" for others. In none of the clinical reports submitted by the firm does the author refer to observations in which either component of the drug was used separately or in which the relative proportion was varied; the Council holds that the absence of such data deprives these reports of much of their value as arguments for the use of Allonal. The new hypnotic, allyliosopropyl barbituric acid, for which great superiority is claimed, is thus made available to physicians only in fixed combination with an antipyretic and analgesic drug which may not be needed and which in itself frequently causes untoward symptoms. The Council finds Allonal unacceptable for New and Non-official Remedies because (1) the therapeutic claims advanced are deemed unwarranted by the facts; (2) the name is not descriptive of its composition, and (3) there is no satisfactory evidence that the administration of a mixture of allylisopropyl barbituric acid and amidopyrine in fixed proportion (or of a feeble chemical compound of these two that behaves in the stomach like a mixture) is rational. (Jour. A. M. A., June 12, 1926, p. 1853).

Limitations of Cod-Liver Oil in Rickets.—Cod-liver oil, long recognized as having antirachitic potencies, has been heralded as a veritable specific, alike for the prevention and the cure of rickets. Under the unfeigned encouragement of the medical profession, child welfare agencies everywhere have preached the doctrine of the liberal administration of cod-liver oil in infancy. The public has been informed through numerous channels, including even the legitimate advertising and the sales promoting of manufacturers. In consideration of the protests against the indiscriminate administration of iodine in the prophylaxis of goiter, it may be asked to what extent the promotion of the use of cod-liver oil in infancy is on a basis that is defensible from every standpoint. Is it effective? Does it involve possibilities of unsuspected harm? Is it worth while? Should it be modified in any way? Evidence is already available that the highest expectations are not consistently realized. However, the unqualified success obtained with cod-liver oil under carefully controlled conditions of many clinicians should give assurance of the wisdom of its inclusion in prophylaxis. What is needed above all at present, is a better understanding of how rickets may be averted in the home as well as in the well ordered clinic. (Jour. A. M. A., June 19, 1926, p. 1912).

L. M. Hunter's Epilepsy Cure.—L. M. Hunter, M. D., Little Rock, Ark., sells "Dr. Hunter's Rational Treatment for Epilepsy," a crude piece of mail order quackery with the indirect aid and assistance of H. S. Brevoort, M. D., and a member of the state board of health in Arkansas, L. L. Marshal, M. D. The cure itself and its methods of exploitation do not differ widely in their sordid details from the average mail order quackery. A "complete course" of "Dr. Hunter's Rational Treatment for Epilepsy" was submitted to the A. M. A. Chemical Laboratory for analysis. The Laboratory found the "treatment" to consist of capsules containing essentially 0.07 Gm. (approximately 1 grain) of phenobarbital (luminal) per capsule. This alleged "true specific for epilepsy" which "stops seizures from the first day used" is simply phenobarbital (luminal)—a powerful drug of distinctly habit forming tendencies, the indiscriminate use of which is not safe. (Jour. A. M. A., June 19, 1926, p. 1928).

Vitamin B and "Vitality."—During the excessive enthusiasm a few years ago for the then newly dis-

covered vitamins and the exalted hope of great physiologic accomplishment through their administration in a therapeutic or prophylactic way, these food factors--notably the vitamin B of yeast—were often expected to "pep up" the jaded person. Somehow it was assumed that the vitamin must "stimulate" one function or another. The actual investigations have, however, been disappointing in some ways. Secretion has not as yet been discovered to be stimulated or "pepped up" in anw way. It has been demonstrated that deprivation of vitamin B does not of itself lower the basal metabolism, nor is the latter altered by large doses of vitamin-bearing products. So far as the basal heat production is a measure of "vitality," it has been shown that the ingestion of amounts of vitamin B in large excess over the minimum requirements for growth and continued well being does not benefit an animal.

Book Announcements

New and Nonofficial Remedies, 1926, containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1926. Cloth. Price, postpaid, $1.50. pp. 459+XLIII. Chicago: American Medical Association, 1926.

New and Nonofficial Remedies is the publication of the Council on Pharmacy and Chemistry through which this body annually provides the American medical profession with disinterested critical information about the proprietary medicines which are offered to the profession and which the Council deems worthy of recognition.

An examination of the preface shows that in addition to inclusion of the new drugs which were accepted during the past year, the book has been extensively revised. Many of the preparations listed in the previous edition have been omitted and the descriptions of others have been revised to bring the statements into accord with present day knowledge.

The book contains a cumulative appendix (printed on buff paper), which is a list of references to reports of the Council and to other publications dealing with articles not described in New and Nonofficial Remedies. This appendix is thus a valuable and quite extensive bibliography of proprietary and unofficial preparations.

It has been stated that the success of the endeavors of the Council on Pharmacy and Chemistry will depend less on the work done by the Council than on the support that is given by the medical profession and that this support can be most efficiently given by physicians by confining their use of proprietary medicines to those that have been found acceptable for inclusion in New and Nonofficial Remedies. Every physician has need for a book of reference such as this volume to which he may turn for trustworthy information with regard to proprietary medicines.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1925. Cloth. Price, postpaid, $1.00. pp. 90. Chicago: American Medical Association, 1926.

This volume contains the reports of the Council on Pharmacy and Chemistry that have been adopted and authorized for publication during 1925. Some of these reports have appeared in *The Journal of the American Medican Association*. Others are now published for the first time.

The annual volumes of the "Council Reports" may be looked upon as the companion volumes to New and Nonofficial Remedies. While the latter describes the medicinal preparations that are found acceptable, the former contain reports on the products that were not accepted.

The volume also contains reports on products which were included in former editions of New and Nonofficial Remedies but which will not appear in the 1926 edition because they were found ineligible for further recognition. It also contains reports of a general nature.

Physicians who keep fully informed in regard to the value of proprietary remedies will wish to own this book.

Hay-fever and Asthma. A practical Handbook for Hayfever and Asthma Patients. By RAY M. BALYEAT, M. D., Instructor in Medicine in the University of Oklahoma Medical School; Director of the Oklahoma Asthma and Hay-Fever Clinic, Oklahoma City, etc. Philadelphia. F. A. Davis Company, Publishers. 1926. 8 vo. of 198 pages with memoranda pages. 27 illustrations. Cloth. Price, $2.00.

Clinical Pediatrics. By JOHN LOVETT MORSE, M. D., Professor of Pediatrics, Emeritus, Harvard Medical School; Consulting Physician at the Children's, Infants' and Floating Hospitals, Boston. Philadelphia and London. W. B. Saunders Company. 1926. Octavo of 848 pages. Illustrated. Cloth. Price $9.00 net.

Elements of Pathology. By ALLER G. ELLIS, M. D., Rockefeller Foundation Visiting Professor of Pathology and Director of Studies, Medical Department of Chulalongkorn University, Siam; Onetime Associate Professor of Pathology, Jefferson Medical College, Philadelphia. Philadelphia. P. Blakiston's Son and Company, 1012 Walnut Street. Octavo of 544 pages with 95 illustrations. Cloth. Price $5.00.

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Editorial

Iodine Medication and the Thyroid Gland.

The popular use of iodine in the thyroid treatment at the present time makes the consideration of the subject one of interest. In fact, iodine is no longer professional in its limitations. Iodine is now advertised in lay circles. Iodine is recommended, in the form of iodized salt and iodized water, for the prevention of goiter. The practice of iodine medication has assumed nation-wide proportions, and it may be said, with certain qualifications, to have apparently taken on the color of wide-spread addiction which may require prohibitory laws to be enacted in order to protect the unwary. But seriously, one may say that, largely from the propaganda on iodized table salt, the use of iodine has taken on aspects that should be considered in order to rightly evaluate the real needs and use of iodine in feeling or in therapy. The laity are now buying iodized salt for cooking and table use, they are seeking at the drug stores iodine preparations for local use on the thyroid gland and they are urging physicians to prescribe iodine without adequate and proper study of needs or requirements for this drug. While its presence in the food and drink is desirable and necessary, its artificial adaptation to food and drink, or its use as medicine should be always carefully supervised and controlled. The same applies to other mineral ingredients of food and drink commonly supplied to the body by this source. Do we seek to give by control in water or food, if artificially introduced, such inorganic minerals as calcium, sodium or potassium? Iodine is apparently more potent and more foreign than these minerals, and in excess iodine may be extremely harmful in upsetting the balanced operation of a vital gland, the thyroid, which presides over the general nutrition and metabolism of the body by aiding iodine elaboration.

Besides there is yet a bit of confusion in medical circles upon the whole iodine question, as one school of thought sets forth one point of view and another school another point of view, if not in contradiction certainly not in full accord. It would seem, therefore, that readers of the VIRGINIA MEDICAL MONTHLY might have presented to them in brief enough on this important question to give some idea of the bearing of iodine upon thyroid medication, and also to emphasize its harmful trend in certain cases.

It is possible too for the reader, upon this suggestion, to pursue the inquiry to a more complete study by following up the literature on the subject which has appeared in medical publications during the last five years.

INDUCED HYPERTHYROIDISM

Kimball,* of Cleveland, in a series of 2,659 cases of hyperthyroidism treated between March 5, 1921, and September 1, 1925, reports, that in 309 of these cases, apparently, from all the information obtainable, the symptoms of hyperthyroidism had been precipitated or made worse by the use of iodine. Of these 309 cases, six cases had been using iodized salt, thirty-seven had been taking iodine self-prescribed, some using a solution of sodium iodide, others using applications of the tincture of iodine over the gland. In 266 of these cases, 84 per cent, "the physicians had prescribed large doses of iodine to be taken over a long period of time, and this treatment had been given in spite of the fact that the goiter was of long standing and on many cases nodular in type."

Hartsock† under the title "Iodized Salt in the Prevention of Goiter," having been impressed by a great increase in evidence of hyperthyroidism and particularly by the appearance of an unusual type of hyperactivity in men, discusses in more or less detail the effect of iodized salt as an active cause of in-

*Journal A. M. A., Nov. 28, 1925.
†Journal A. M. A., May 1, 1926, pg. 1334.

duced hyperthyroidism citing his experience in a group of men patients who had used iodized salt. In an analysis of hyperthyroidism in sixteen men, the use of iodized salt in family cooking appeared to be a plausible explanation of from 25 to 50 per cent as the cause of hyperactivity of the gland. Ten of the cases showed a basal metabolism rate of from plus 26 to plus 71; nearly all were doing mental work; the ages ranged from 32 to 55 years; the onset of symptoms was invariably associated with the practice of using iodized salt, occurring within one to eighteen months. The initial symptoms were (1) loss of weight and the appearance of usual weakness, (2) nervous and heart symptoms; (3) no exophthalmus, although a staring expression was evident (4) thyroid was small, firm, slightly palpable only, but with thrill and bruit (5) foci of infection were demonstrable or strangely suspected in each case.

The Cleveland Clinic, where an average of 1,500 cases of hyperthyroidism are seen annually, afforded the author opportunity to make the observation that there were very few cases of hyperthyroidism seen in persons between the ages of 20 and 35, but there were many who, after using the iodized salt, suffered from nervous symptoms, as insomnia, irritability, depression, lack of concentration, emotional disturbances, sweating, flushing, palpitation of the heart, with a loss of weight and endurance; iodine rash and acne vulgaris were more frequent.

If the foreging illustrations from current medical publications may be relied upon to show that iodine may and has become harmful when taken without the proper safeguards and proper administration, one may naturally turn to the question, how is iodine to be used and in what cases is it useful and when and how is it harmful?

It is agreed that iodine is beneficial to patients under given conditions. Marine has shown the relation of iodine to the structure and function of the thyroid gland. Kimball, under the direction of Marine, has given iodine to several thousand school children in Akron, Ohio, and he reached the following conclusions, which every practicing physician may keep in mind:

(1) Simple goiter can be prevented by the administration of small amounts of iodine.

(2) One-third of the cases of simple goiter disappear, or are decreased markedly by the administration of a small amount of iodine.

(3) The administration of small amounts of iodine does not produce a toxic condition (exophthalmic goiter).

Virginia probably lies without the goiter zone. According to Hayburst cited editorially in *J. A. M. A.*, June 26, 1926, goiter is most frequently found in geographic locations of glacial formation. The absence of iodine in the soil of glacial formations resulted from the removal of iodine salts in this period, by the melting of ice crust.

As a synopsis of a well presented opinion of a recent author, coming from a section of the country where thyroid and goiter have been widely studied as a result of the abundant material available, as well as the excellent facilities afforded by the Cleveland Clinic, one may note with profit the conclusions of Hartsock, in his recent paper on iodized salt. We shall avail ourselves of editorial license by giving a selected number of Hartsock's statements on iodine administration.

1. Iodine adminstration in small quantities, periodically, to children under the age of puberty, is an effective preventive of simple goiter.

2. At the age of puberty, before iodine is prescribed, a careful examination of the thyroid gland should be made by a physician to determine whether fetal adenomas are present. If iodine is given it should be stopped immediately upon the appearance of toxic symptoms.

3. The continuous use of iodine should never be practiced by adults. When given to adults frequent observations should be made upon pulse and weight.

4. Under no circumstance should iodine be given to adults with fetal adenomas with or without symptoms of hyperthyroidism, except for a short period of time.

5. In adults who have simple large colloid-goiter or large coiloid adenomatous goiter without fetal adenoma, iodine has remarkably beneficial results and may be tried but only with extreme caution. Such goiter may for a short time appear to be much improved, but may eventually culminate in hyperthyroidism

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of a serious nature, with a basal metabolic rate of plus 75 to 100.

6. In exophthalmic goiter, in which operation is not to be done, iodine should be discontinued or greatly reduced when the metabolic rate is lowered. Continued use of iodine in these cases often overactivates the gland.

7. Iodine is most efficiently administered and controlled in the form of chocolate tablets containing 10 mg. of organic iodine or in the compound solution of iodine (Lugol). Both should be given under careful medical supervision.

Kimball says that in all cases of iodine treatment the doses should be given in terms of milligrams. The maximum dose for an adult, provided there are no contra-indications, should be 10 mg. daily for not longer than a month and then under close supervision.

Iodine in Diffuse Colloid Goiter

Following Plummer, one may say that diffuse colloid goiter, termed endemic or adolescent goiter in the United States, is observed in the last half of the second decade. Some of these colloids may go over into the succeeding decade, retaining more than normal colloidial substance. The diffuse colloid goiter with adenoma, with lateral lobes, says Plummer, more than 6 cm. in diameter are relatively rare in this country. The basal metabolic rate is within or below normal rates. In thyroids with 6 cm. of diameter, when compressed, the basal metabolic rate ranges from 8 to 18 per cent below normal. Bruit and thrill are present as a rule. Iodine is the sheet anchor in treatment of this form of goiter, if properly controlled.

Iodine in Adenomatous Goiter

Adenomas are fetal or adult. The majority of adenomatous goiters have their beginning in colloid goiter, according to Plummer. The embryonal cells seem to stimulate the gland to over-activity. These cases of nodular or adenomatous goiter are the ones to which iodine should not be given. Plummer has shown that adenomatous goiter with hyperthyroidism is a late stage of adenomatous goiter without hyperthyroidism.

Iodine in Exophthalmic Goiter

Boothby (Collected Papers of Mayo Clinic, 1924, page 121), in a well considered article on this subject, includes an illustrative case of iodine medication in adenomatous goiter which may be reported here for emphasis sake.

Case A-455636—A woman aged sixty-four years had worked very hard all her life and taken little care of herself. She had had a goiter for at least fifteen years, but it had never troubled until after a traveling salesman sold her some goiter medicine, which she had been taking for six months. Within two months she began to lose weight and strength. The symptoms had been marked for two months and cardiac trouble was evidenced by tachycardia, palpitation, dyspnea, and edema. The patient presented the typical symptoms of adenomatous goiter with hyperthyroidism. Both lobes and the isthmus of the thyroid were moderately enlarged and somewhat nodular; there were no thrills or bruit. There was no exophthalmus and the eyes did not stare. The patient was somewhat nervous, but did not have the typical mental restlessness so characteristic of exophthalmic goiter. Her heart was somewhat enlarged but without murmurs. The pulse rate on admission was 110, but dropped to 100 on the following day. The basal metabolic rate on the morning after admission was +53 and on the sixth day +39. Thyroidectomy was performed the day after the admission. The pathologic report was multiple, degenerative, fibrous, calcareous colloid and fetal adenomas weighing 162 gm. The post-operative period was without incident although the patient gained her strength somewhat slowly.

This case illustrates when iodine medication harms and becomes a medical tragedy. Boothby concludes in the following words:

1. Iodine medication administered to patients with adenomatous goiter without hyperthyroidism often indicates a syndrome comprehended in the term "adenomatous goiter with hyperthyroidism."

2. Iodine administered to patients woth exophthalmic goiter usually reduces the basal metabolic rate and practically always causes the typical and characteristic nervous and gastrointestinal symptoms to disappear.

3. Iodine when properly administered will prevent death from the acute post-operative exophthalmic goiter crisis.

4. Iodine with few exceptions should be advised only as a temporary therapeutic measure in the treatment of exophtahalmic goiter to bring the patient in a safe condition for partial thyroidectomy.

News Notes

The Virginia State Board of Medical Examiners

Held its regular semi-annual examinations in Richmond, June 16-19, inclusive, one hundred doctors applying for license to practice

in this State. Certificates were granted to 84 who took examinations and to 16 who applied through reciprocity, there being no failures. Of those licensed, 53 were graduates of the Medical College of Virginia and 28 of the University of Virginia, Medical Department.

The secretary-treasurer, Dr. J. W. Preston, Roanoke, announces that an examination of their records shows that more certificates were issued following this meeting than at any time since 1916, which would seem to indicate that either more men are now interested in the study of medicine, or that more are now finding the means of meeting the expenses incident to the study of medicine.

Following is an alphabetical list of those licensed through examination:

Dr. Haddon C. Alexander, Jr., Tunstall, Va.
Dr. Fletcher E. Ammons, Hampton, Va.
Dr. Guy C. Amory, Grafton, Va.
Dr. Lewis W. Angle, Richmond, Va.
Dr. Benjamin H. Bailey, Richmond, Va.
Dr. J. Reginald Bailey, Keysville, Va.
Dr. Webster P. Barnes, Richmond, Va.
Dr. F. Clyde Bedsoul, Richmond, Va.
Dr. Edward L. Boone, Rich Square, N. C.
Dr. Richard A. Bowen, II, Richmond, Va.
Dr. Bruce E. Bradley, Boston, Mass.
Dr. William T. Burch, Richmond, Va.
Dr. Orman C. Campbell, Princeton, W. Va.
Dr. Joseph Caplan, Baltimore, Md.
Dr. James Scott Chalmers, University, Va.
Dr. John H. Childrey, Rochester, N. Y.
Dr. George G. Chiles, Strasburg, Va.
Dr. Louis T. Claytor, University, Va.
Dr. Harvie D. Coghill, Richmond, Va.
Dr. John M. Crymes, South Hill, Va.
Dr. Gilbert Daniel, Petersburg, Va.
Dr. Andrew S. Davis, Chincoteague Island, Va.
Dr. Frederick F. Davis, Roanoke, Va.
Dr. William M. Dick, Newport News, Va.
Dr. Richard B. Easley, Richmond, Va.
Dr. James F. Folk, Richmond, Va.
Dr. Harry Goldstein, Richmond, Va.
Dr. Francis C. Goodwin, University, Va.
Dr. James B. Gordon, Richmond, Va.
Dr. Roy A. Gregory, University, Va.
Dr. James R. Grinels, Grinels, Va.
Dr. Savala E. Gunn, Sutherlin, Va.
Dr. Taswell P. Haney, Jr., University, Va.
Dr. DeWitt Hamrick, University, Va.
Dr. Jacob C. Harshbarger, Port Republic, Va.
Dr. Gordon L. Hastings, Richmond, Va.
Dr. Edward C. Held, Richmond, Va.
Dr. Lonnie M. Hines, Abingdon, Va.
Dr. Abraham J. Hollander, Richmond, Va.
Dr. Frank R. Hopkins, Hot Springs, Va.
Dr. Charles J. Horgan, Washington, D. C.
Dr. Algernon S. Hurt, Jr., Richmond, Va.
Dr. James P. Jones, Jr., Richmond, Va.
Dr. Aaron A. Karan, Brooklyn, N. Y.
Dr. Lawrence B. Kelleher, Norfolk, Va.
Dr. Lewis A. Law, Abingdon, Va.
Dr. Thomas L. Lee, Richmond, Va.
Dr. Charles D. Lucas, University, Va.
Dr. Lewis C. Lush, Richmond, Va.
Dr. Helen Magly, Cincinnati, O.
Dr. Edward C. Maphis, Richmond, Va.
Dr. John J. McDonald, Richmond, Va.
Dr. Maurice J. Miller, Norfolk, Va.
Dr. Walton F. Mitchell, Stewartsville, Va.
Dr. William R. Morton, Richmond, Va.
Dr. Daniel O. Nichols, University, Va.
Dr. R. Angus Nichols, Jr., Richmond, Va.
Dr. Charles H. Peterson, University, Va.
Dr. William O. Porter, Roanoke, Va.
Dr. Bruce L. Randolph, Richmond, Va.
Dr. Maurice Rosenthal, Richmond, Va.
Dr. Willcox Ruffin, University, Va.
Dr. Sam B. Scott, University, Va.
Dr. Marion H. Seawell, Richmond, Va.
Dr. Cornelia W. Segar, Burkeville, Va.
Dr. James Asa Shield, Richmond, Va.
Dr. Thomas J. Sims, Jr., University, Va.
Dr. Jack Smiley, Salem, Va.
Dr. Albert M. Smith, University, Va.
Dr. James B. Smith, Jr., Sharps, Va.
Dr. William G. Smith, Raleigh, N. C.
Dr. Aaron B. Spahr, Benhams, Va.
Dr. George G. Stone, Wytheville, Va.
Dr. Oscar Swineford, Jr., Richmond, Va.
Dr. Henry L. Townsend, Richmond, Va.
Dr. Clarence W. Trexler, University, Va.
Dr. Theodore M. Trousdale, Rome, Pa.
Dr. Louis Wachtel, Richmond, Va.
Dr. Harry Walker, Richmond, Va.
Dr. Charles J. Waller, Catlett, Va.
Dr. Frank B. West, Alexandria, Va.
Dr. James E. Wheeler, University, Va.
Dr. Louis L. Wilkinson, University, Va.
Dr. Burbridge S. Yancey, University, Va.

The list of those licensed by recriprocity is as follows:

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Dr. Ernest E. Anderson, Bluefield, W. Va.
Dr. Harry W. Bachman, Bristol, Va.
Dr. Horace B. Dean, Roanoke, Va.
Dr. William F. Dobyns, Augusta, Va.
Dr. Floyd L. Echols, Seven Mile Ford, Va.
Dr. William E. Fitch, Mt. Vernon, N. Y.
Dr. Stuart O. Foster, Roanoke, Va.
Dr. Stellman G. Gibbs, St. Albans, W. Va.
Dr. John E. Habbe, Norfolk, Va.
Dr. Regina C. Johnson, Richmond, Va.
Dr. Arthur D. Knott, Richmond, Va.
Dr. Ira C. Long, Radford, Va.
Dr. William Siegal, Norfolk, Va.
Dr. Harry S. Smythe, Mountain City, Tenn.
Dr. Harry Sutelan, Norfolk, Va.
Dr. Adam G. White, Lynchburg, Va.

Walter P. Bronston, Richmond, Va., was also licensed to practice chiropody upon the basis of reciprocity with Illinois.

The Norfolk Meeting, Medical Society of Virginia.

Only about two months remain before the annual meeting of the Medical Society of Virginia in Norfolk. Indications are that we will have a large attendance and a most interesting program. The Monticello Hotel will be headquarters for the meeting and it has been arranged to have the usual exhibits in addition to the reading and discussion of papers. Titles of papers by members will be received beginning August 12th. It is requested that each member presenting a paper arrange to have a member open discussion on his paper.

Entertainments, shopping and sight seeing will keep the ladies busy, so bring your wives and daughters.

Dr. W. L. Harris, Norfolk, is this year's president. Dr. Israel Brown, Medical Arts Building, Norfolk, is chairman of the Local Committee of Arrangements.

Local Societies should appoint delegates and alternates to the House of Delegates and send names of same to the Society's Offices, at 104½ West Grace Street, Richmond.

The Doctor's Playtime.

Doctors so often fail to realize the truth of the old adage, "All work and no play makes Jack a dull boy" that we take the liberty of quoting from a very timely selection in *The Atlantic Medical Monthly* on this subject:

"As a class, doctors do not play enough. Their hours are long, their work depressing, and their opportunity for recreation scant. Their leisure time is apt to be devoted to medical meetings, perusal of medical literature, or study of one kind or another. Their friendships are largely among men of their own profession—when, indeed, they have time to give to friends—and all their activities center around their work.

"Yet it must not be forgotten that every man needs recreation and rest if he is to remain healthy and preserve a sane attitude of mind. That 'tired feeling' is more apt to come from 'staleness' than from overactivity. Among no other class of professional people is a rested body and a clear mind more essential than with the men on whom other folk's lives so often depend. The doctor owes it not only to himself and to his family, but to his patients to care for his own well-being.

"A hobby totally removed from the world of medicine is a most excellent thing for any physician to develop. In Paris recently the 'Salon des Medecins' presented examples of paintings and sculpture executed by physicians. It was a good idea, and one worth developing in this country. Other men find their outlet in church work, clubs, golf, gardening, and varied activities. It matters not so much what vent the play instinct may have, it is the having *something* outside the regular routine to occupy the leisure hours pleasurably that is necessary to a well balanced and normal life.

"The physician is about the only professional man who is on call all the time, day and night, and in this period when the eight-hour day has been recognized as practically standard for the laborer, it would appear justifiable for doctors to consider some plan that will give them certain hours for their own without fear of being disturbed. This has been one of the strong appeals of the specialties, for the specialist can regulate his hours of work better than can the general practitioner. It is also one of the strongest arguments in favor of group medicine. The members of a clinic can take their turn attending to the night work, so that all will have some opportunity to devote to their physical and spiritual betterment—in other words, to play."

Many Virginia Doctors on Vacation.

Dr. and Mrs. Allen Perkins and children,

of Norfolk, have been visiting friends near West Point, Va.

Dr. and Mrs. Stuart McGuire, Richmond, sailed from New York, July 31st, and will spend several weeks motoring through England and Scotland.

Dr. George B. Lawson and family, of Roanoke, spent part of their vacation at Cape Hatteras, N. C.

Dr. and Mrs. Wyndham Blanton, Richmond, sailed the latter part of July for a visit of six weeks in Europe.

Dr. and Mrs. Aaron Jeffery, of Newport News, have been visiting relatives in Richmond, Va.

Dr. and Mrs. J. Shelton Horsley, Richmond, who sailed in June for a European tour, are expected to land in New York on August the 16th. While traveling in Europe, Dr. Horsley has visited several of the foreign clinics, including those of the English workers, Gye and Barnard, and Blair Bell, all of whom have done recent and most interesting researches in the cause and treatment of cancer.

Dr. and Mrs. J. W. Tipton have just returned to their home in Danville, Va., after a visit to New York.

Dr. and Mrs. Albert E. Wilson and Albert E. Wilson, Jr., of Norfolk, are spending their vacation visiting Mrs. Wilson's brother-in-law and sister, Dr. and Mrs. Robert F. Hardesty, in Reisterstown Road, Baltimore, Md.

Dr. and Mrs. E. H. Terrell, Richmond, left the first of this month for a motor trip through the mountains of western North Carolina.

Dr. and Mrs. G. G. Crawford and daughter returned to their home at Strasburg, Va., the latter part of July, after a visit to relatives in Hanover County, Va.

Dr. and Mrs. T. Allen Kirk, of Roanoke, have been enjoying a vacation with relatives in Maryland.

Dr. and Mrs. Henry A. Bullock have returned to their home in Richmond, after a visit to friends in Evanston, Ill., and South Bend, Ind.

Dr. and Mrs. I. Keith Briggs, South Boston, spent sometime in July on a vacation near Asheville, N. C.

Dr. J. E. Rawls, Suffolk, Va., returned home the last of July, after attending clinics in a number of European countries. After most of the party sailed for the States, Dr. Rawls took an extension trip to the British Isles.

Dr. James W. Reed returned home and resumed his practice in Norfolk, about the middle of July, after attending a number of clinics on Continental Europe. He and Dr. Rawls were members of the Interstate European Assemblies of 1926, which attended clinics in eight foreign countries.

Dr. J. A. Tyree and family have returned to their home in Danville, Va., after a visit to Remington, Va.

Dr. and Mrs. H. Stuart MacLean and daughter, of Richmond, have been spending several weeks touring through the far West during which time they have visited many points of interest, especially in California and Colorado.

Dr. and Mrs. C. B. Fox and children, of Monterey, have been enjoying a visit in Rockingham and Albemarle Counties, Virginia.

Dr. and Mrs. Ennion G. Williams, Richmond, have been spending a vacation at Woodberry Forest, Va.

Dr. and Mrs. A. M. Saunders, Norfolk, have been visiting in Buckingham County.

Dr. Clyde Bailey has returned to his home in Danville, after a visit to Virginia Beach, Va.

Dr. and Mrs. W. Lowndes Peple, Richmond, spent their usual summer vacation at Nimrod Hall, Va.

Dr. A. M. Showalter returned to his home at Cambria, Va., the latter part of July, after a short visit to Covington, Va.

Dr. J. L. Wright, Harrisonburg, has been on a visit to Canada.

Dr. M. E. Hundley, Martinsville, has returned home after a trip with the Interstate European Assemblies, which attended clinics in a number of European countries.

Dr. W. B. Porter, Roanoke, spent his vacation at Wrightsville Beach, N. C.

Dr. and Mrs. John Tipton, Keysville, are home again after a visit to relatives in Pulaski and Wytheville, Va.

Dr. and Mrs. O. H. Whitlock and son, of Tobaccoville, Va., have been spending sometime at Virginia Beach, Va.

Dr. and Mrs. St. George Grinnan returned to their home in Richmond, the latter part of July, after a visit to Woodberry Forest, Va.,

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where they went to attend the marriage of Dr. Grinnan's niece.

Dr. and Mrs. W. J. Wigington are home again at Java, Va., after a visit to relatives near Rocky Mount, Va.

Dr. and Mrs. Charles R. Robins, who spent several weeks in Europe, returned to Richmond, the latter part of July.

Dr. S. P. Gardner, Arno, Va., spent his vacation visiting in Kentucky and Indiana.

Dr. and Mrs. R. Finley Gayle, Richmond, spent a vacation in July visiting Dr. Gayle's parents in Lawrenceville, Va.

Dr. R. H. Fuller, Clover, Va., was a recent visitor in Richmond.

Dr. and Mrs. S. T. Yeatts, of Floyd, recently took a motor trip through Tennessee, Mississippi and Louisiana and visited Mrs. Yeatts' parents while away.

Dr. and Mrs. W. Wallace Gill are home again in Richmond after spending a month on the coast of Maine.

Dr. Edward B. Broocks, an alumnus of the University of Virginia and now a resident of Washington, D. C., recently visited his parents at Chase City, Va.

Dr. and Mrs. F. W. Upshur, Richmond, recently visited their brother, Lt. Col. W. P. Upshur, at Quantico, and later left for an automobile trip to Connecticut. They will return by way of White Sulphur Springs, W. Va., reaching home early in September.

Dr. C. M. Miller, Richmond, has been spending some time with his family in their cottage at Old Sweet Springs.

Dr. and Mrs. R. A. Vonderlehr, formerly of Richmond, have been visiting relatives in Chesterfield County, Va. Dr. Vonderlehr is now located at U. S. Marine Hospital No. 43, Ellis Island, N. Y., one of the immigration hospitals of the U. S. Public Health Service.

Dr. and Mrs. Dickinson Celebrate Golden Wedding.

Dr. and Mrs. S. W. Dickinson, of Marion, Va., celebrated the fiftieth anniversary of their wedding on July 12, all of their children and grandchildren being with them for the occasion. Many friends and relatives called during the day to extend congratulations and a number of telegrams, messages and remembrances were received. Dr. Dickinson has practiced medicine in Marion for forty-five years in all of which time he has taken an interest in the activities of his section.

Dr. Edmund Horgan,

Washington, D. C., a member of the Medical Society of Virginia, leaves for Europe the latter part of August and will return home about the middle of October.

The Tazewell County Medical Society

Held its regular meeting in Richlands, Va., July 22, the new president, Dr. J. W. Shawver, of that place, presiding. Dr. Isaac Peirce, Tazewell, is secretary of the Society. Dr. F. H. Smith, Abingdon, and Dr. C. B. Bowyer, Stonega, councilors, and the secretary of the State Society were in attendance. It was decided that doctors living in Tazewell and other counties in the Clinch River Valley should be invited to meet with the Wise County Medical Society in September, at which time there will be a discussion as to whether it will be for the best purposes of the counties to maintain individual county units or form a district medical society.

Proposed Constitution and By-Laws.

At the last meeting of the Medical Society of Virginia, the House of Delegates adopted a resolution that the Executive Council appoint a committee to examine carefully the Constitution and By-Laws of the Society and make such revisions as it deemed wise. At the mid-winter session of the Council, a Committee composed of Drs. E. L. Kendig, chairman, F. H. Smith and Charles R. Grandy was appointed and promptly got to work. The proposed Constitution and By-Laws arranged by this Committee appears in the present issue of the Journal, beginning on page 327.

It is requested that each member of the Society read this draft carefully, that the various articles and sections be freely discussed in County society meetings, and that delegates and alternates be instructed to present views of their respective societies at the Norfolk meeting.

The American Society for the Control of Cancer

Will hold its regular meeting September 20-24, at the Lake Mohonk Mountain House, Lake Mohonk, New York. An interesting program has been prepared for this occasion.

Dr. R. L. Mason,

Of Roanoke, Va., was called to Bridgewater,

Va., July 20th, by the sudden death of his father, Mr. R. J. Mason. Mr. Mason was a Confederate Veteran, having served during the Civil War in the President's Guard and Otey's Battery. He was in his eighty-fifth year.

The American Ophthalmological Association,

At its recent meeting, elected Dr. William Zentmayer, of Philadelphia, president, and Dr. Emory Hill, Richmond, Va., secretary. The next meeting will be held in Quebec, Canada.

Dr. Jacob S. Rosenthal,

Formerly of Norfolk, Va., is now in New York City where he expects to remain a year or more studying and investigating many subjects that affect the medical profession as a whole.

Married.

Dr. Hugh Trout, Roanoke, Va., and Miss Alice Green, Hollins, Va., early in June.

Dr. Neilson Hampden Turner and Miss Virginia Payne Hening, both of Richmond, June 12.

Dr. A. Burleigh Spahr, of Benhams, Va., and Miss Annie Bell Butcher, of Richmond, June 12.

Dr. R. S. Kyle and Miss Vera Hampton, of Galax, Va., early in June.

Dr. Louis Lee Wilkinson, of this year's class, University of Virginia Medical Department, and Miss Cosie Byrd Wyndham, Berryville, Va., a graduate nurse of the University Hospital, in Washington, D. C., early in July. They will sail July 27 for Soochow, China, where they will be connected with the Wilkinson Hospital, established there some years ago by Dr. Wilkinson's father.

Dr. B. B. Bagby to Leave Richmond.

It is with regret that the citizens of Richmond, Va., have learned of the resignation of Dr. Bathurst B. Bagby as chief medical inspector of the Bureau of Health of the Department of Public Welfare, of this city. Dr. Bagby has filled the above named position most acceptably for the past two years, having previously served for sometime as health officer of Henrico County. He leaves Richmond to become health officer of the City of Athens and Clarke County, Georgia, and will enter upon his new duties on September 1st. Some of the first work to be undertaken by Dr. Bagby in his new field is to represent Clarke County, Georgia, in a health demonstration which is to be put on in that County in conjunction with the Commonwealth Fund of New York.

Dr. Robert Whitehead,

Recently of Victoria, Va., has moved to Richmond, Va., where he is associated in practice with Dr. Thomas W. Murrell, at 17 East Grace Street.

Dr. Wesley Williams

Has returned to Norfolk, Va., after an absence of some months, and has resumed his practice, his home being at 521 Pennsylvania Avenue.

Dr. Kitchin Remains Dean at Wake Forest Medical College.

We are advised that Dr. T. D. Kitchin, who recently resigned his connection with Wake Forest Medical College, North Carolina, to resume private work, has withdrawn his resignation, and will remain dean of the School.

Dr. Theodore M. Trousdale,

Of Johns Hopkins University, of the class of '25, after the past year spent in Baltimore, will locate in Richlands, Va., the middle of August, where he will be engaged in private practice.

Dr. H. Aulick Burke,

For some time of Petersburg, Va., has located in Columbus, Ga., where he is specializing in surgery.

Dr. Blanton L. Hillsman,

Richmond, has been appointed chief surgeon of the Virginia National Guard, succeeding Dr. Wm. Russell Jones, Richmond, resigned.

Dr. Haynes Hurt in Auto Accident.

Dr. I. J. Haynes, well known travelling representative of W. B. Saunders Company, Philadelphia, suffered some painful bruises and cuts about his head and body, July 27th, when his car was struck by another automobile in Kimball, W. Va. He has been recuperating at his home in Florida.

Dr. William M. Junkin,

Of the class of '25, Medical College of Virginia, after a year's service at St. Luke's Hospital, Richmond, Va., has located in Welch,

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W. Va., where he is associated with Drs. Hall and Daniel.

Dr. Stuart O. Foster,

Of the class of '24, Yale University School of Medicine, after an internship at the Fifth Avenue Hospital, New York City, has located in Roanoke, Va., with offices in the American National Bank Building.

Dr. T. Duckett Jones,

Who has just completed a service at the Massachusetts General Hospital, Boston, is visiting for a few weeks in Northern Michigan before returning to Virginia.

American Board of Otolaryngology.

The next examination given by this Board will be held in Denver, Colorado, at the University Hospital, on Monday, September 13, 1926. Application should be made to the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

Dr. W. Ambrose McGee,

After a year at Bellevue Hospital, New York, has returned to Richmond and has offices at 2618 Grove Avenue. He will limit his work to diseases of infants and children. Dr. McGee was graduated from Medical College of Virginia in 1924 and served an internship at St. Elizabeth's Hospital, Richmond, before going to New York.

Dr. Claude Moore,

Of Roanoke, Va., recently underwent an operation for appendicitis at Lewis-Gale Hospital, Roanoke.

Children's Clinic at Norfolk, Va.

More than 800 babies under 18 months are under supervision of the Children's Clinic at Norfolk, which in twelve years has developed from an outgrowth of the visiting nurse service of the King's Daughters into an organization housed through the generosity of the local Kiwanis Club in a modern 3-story building and maintaining a staff of 20 visiting physicians, 4 nurses, a social service worker, a dentist, and other special workers who give occasional service. Clinic sessions are held three times a week.

Dr. Allen Moore,

Formerly of New Market, Va., but recently of Doylestown, Pa., has been spending sometime in Boston, Mass., where he received an appointment for the month of July with Dr. Maynard Ladd, associate in pediatrics at Harvard University. Dr. Moore was assigned work at the Boston Dispensary Children's Hospital and Health Clinics of neighboring cities.

Dr. Moore was also recently appointed a consultant for the Bell Telephone Company of Pennsylvania.

Dr. J. L. Blanton,

Fieldale, Va., of the class of '24, Medical College of Virginia, recently underwent an operation for appendicitis in Martinsville, Va.

Dr. Edward Held,

Richmond, of the class of '26, Johns Hopkins University, entered the Polyclinic Hospital, New York City, August 1st, for a two years' internship in surgery.

Government Warns Public Against Fraudulent Radioactive Waters and Drugs.

The alleged medicinal efficacy of slightly radioactive waters and other slightly radioactive preparations has been found to be much misrepresented, say officials of the Bureau of Chemistry of the U. S. Department of Agriculture, who, in the enforcement of the Federal Food and Drugs Act, have made a nation-wide survey of waters and drugs alleged to be radioactive. Only 5 per cent of the products analyzed and claimed to be radioactive contained radium in sufficient quantities to render them entitled to consideration as therapeutic agents and then only in certain very limited conditions, say the officials. Highly exaggerated therapeutic claims obviously designed to mislead the purchaser are being made for many of the products which contain little or no radium.

Action will be taken under the Federal Food and Drugs Act against shipments of the alleged radioactive products which are falsely or fraudulently misbranded under the terms of the Federal Food and Drugs Act. A warning regarding the indiscriminate use of those few products which are highly radioactive is also sounded by the officials, as "The distribution to the general public without discrimination or adequate supervision of highly radioactive products or the devices for rendering water or other substances highly radioactive is of very questionable propriety since radium in active dosage is potent for harm as well as for good and should be administered with great caution."

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Dr. Rees Morgan,

Who has just completed a two years' internship at the University of Virginia Hospital, for the last thirteen months of which he was resident on obstetrics and gyencology, left the first of August for New Orleans, La. He will be at the Touro Infirmary and will take a two years' fellowship in the same specialties at Tulane University.

Dr. J. S. Horsley, Jr.,

Who has been assistant attending surgeon for the past three years at St. Elizabeth's Hospital, Richmond, has been placed in charge of the department of plastic and thoracic surgery at that hospital and is also an associate in general surgery.

Doctors Receive Military Training.

Virginia doctors and those from nearby states listed as attending the Officers' Reserve Corps, Medical Department, at Carlisle Barracks, Pa., from July 4th to 18th, inclusive, were:

Colonels W. M. Phelps, Staunton, Va., Thos. Foley, Washington, D. C., J. W. McConnell, Davidson, N. C., and M. L. Townsend, Raleigh N. C.

Lieutenant Colonels Dunlap P. Penhollow, D. D. Stuart, Daniel S. Hatfield, and O. D. Wescott, Washington, D. C., Walter E. Vest, Huntington, W. Va.

Majors C. P. Obenschain, New Hope, Va., W. A. Brumfield, Blacksburg, Va., H. L. Freeland, Charles M. Edwards, and J. A. Rollings, Richmond, Va., Chas. F. Dodd, Alexandria, Va.; C. B. Conklin, George B. Jenkins, and J. P. Madigan, Washington, D. C.; Ross M. Miner and Hugh G. Nicholson, Charleston, W. Va.

Captains T. Latane Driscoll, Richmond, Va., G. A. L. Kolmer, Salem, Va., and Everett M. Ellison and R. J. Haws, Washington, D. C.

Dr. R. D. Campbell,

Of the class of '25, Medical College of Virginia, having completed an internship at George Ben Johnston Memorial Hospital, Abingdon, Va., has located at Broadford, Va., for the practice of medicine.

Dr. H. J. Warthen, Jr.,

Of the class of '25, University of Virginia, Medical Department, upon completing his year of service as intern at St. Elizabeth's Hospital, Richmond, spent July studying at the Mayo Clinic in Rochester, Minn. While away, he also visited Dr. Crile's Clinic and new hospital and other clinics in Cleveland. On his return to Richmond, the first of this month, he again entered St. Elizabeth's Hospital, where he has been appointed research fellow and an assistant in the department of general surgery and gynecology.

The Inter-State Post-Graduate Assembly of North America

Is to be held at Cleveland, Ohio, October 15th to 22nd, inclusive, with hotel headquarters at Hotel Cleveland. General headquarters for all scientific sessions and exhibits will be at the Municipal Auditorium. The discussions and clinics will be on a variety of interesting subjects. The Program Committee is composed of Dr. George W. Crile, Cleveland, chairman, and Drs. Lewellys F. Barker, Baltimore, George E. Brewer, New York City, Henry A. Christian, Boston, John B. Deaver, Philadelphia, Duncan A. L. Graham, Toronto, James B. Herrick, Chicago, and Jonathan C. Meakins, Montreal. Dr. Wm. B. Peck, Freeport, Ill., managing director, will gladly furnish any desired information.

American Therapeutic Society.

At the annual meeting of this Society in Philadelphia, in June, under the presidency of Dr. Lewis H. Taylor, of Washington, D. C., Dr. Wm. A. Campbell, of Colorado Springs, Col., was elected president, and Dr. Wm. J. Mallory, Washington, D. C., secretary. The next annual meeting is to be held in Washington, D. C.

The Medical Society of the State of North Carolina.

At its annual meeting in June, at Wrightsville Beach, elected Dr. John Q. Myers, Charlotte, president, Drs. J. W. Carroll, Wallace, A. Y. Linville, Winston-Salem, and Charles H. Coke, Asheville, vice-presidents, and re-elected Dr. L. B. McBrayer, Southern Pines, secretary-treasurer. Durham was selected as the place of meeting in the Spring of 1927.

The American Electrotherapeutic Association

Will hold its annual meeting at Atlantic City, September 8-11, with headquarters at Hotel Ambassador. Dr. Victor C. Pedersen, of New York City, is president.

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Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for:

Medical Officers to fill vacancies in the Indian Service, the Public Health Service, the Coast and Geodetic Survey, the Panama Canal Service, the Veterans' Bureau, and other branches, applications to be rated as received until December 30;

Physiotherapy Aide and Physiotherapy Assistant, applications to be on file not later than October 9, or November 27;

Occupational therapy aide and occupational therapy pupil aide (arts and crafts), occupational therapy aide (trades and industrial), and occupational therapy aide (agriculture), applications to be rated as received at Washington, D. C., until December 30;

Social worker (psychiatric), applications to be on file at Washington, D. C., not later than September 21;

Graduate Nurse and Graduate Nurse (Visiting Duty), applications to be rated as received until December 30.

Full information and application blanks may be obtained from above named Service, or the secretary of the Board of U. S. Civil Service Examiners at the postoffice or customhouse in any city.

Obituary

Dr. Ludwig Mendelsohn,

For nearly twenty-five years a practicing physician of Norfolk, Va., died at his home in that place, the latter part of July, after having been in bad health for several months. He was a native of Germany and about fifty-three years of age. He studied medicine in Germany, later coming to this country. He was a Mason and a member of a number of fraternal organizations, his local and State medical societies and the American Medical Association. He was also a member of the staff of St. Vincent's Hospital, Norfolk. He is survived by his wife and a large family connection.

The Norfolk County Medical Society, at a called meeting on July 20th, adopted the following resolutions on the death of Dr. Mendelsohn:

WHEREAS, God, in His infinite wisdom, has called our beloved colleague, Dr. Ludwig Mendelsohn, to his reward; therefore be it

RESOLVED, That in the death of Dr. Mendelsohn the Norfolk County Medical Society has lost a valuable member, a physician who upheld the best traditions of our calling in skill, charity and love for mankind. His high character, gentle courtesy, and profound sense of honor, endeared him to the community. A God-fearing gentleman and physician has passed.

That a page be set aside in the minute book of this society dedicated to his memory;

That a copy of these resolutions be sent to his family with our sincerest sympathy;

That these resolutions be published in the Norfolk daily papers, and the Virginia Medical Monthly.

ISRAEL BROWN,
STARK A. SUTTON,
LEVI OLD,
EDWARD T. HARGRAVE,
Committee.

Dr. John Wesley Long,

One of the best known surgeons in North Carolina, died August 1st, at his home in Greensboro, of heart disease. Dr. Long was sixty-seven years of age and a graduate in medicine from Vanderbilt University, Nashville, Tenn., in 1884. During the World War, Dr. Long volunteered and saw active service in France. For a short time, Dr. Long made his home in Richmond, where he was connected with the faculty of the Medical College of Virginia, and at the time of his death, was Emeritus Professor of Diseases of Women and Children at this College. His funeral was held with military honors.

Dr. Burnley Lankford.

As we go to press, we learn with regret of the death by drowning of Dr. Burnley Lankford, well know obstetrician of Norfolk, Va. The accident occurred on the afternoon of August 3rd, in front of Dr. Lankford's cottage at Cape Henry. In an effort to save the life of a young nephew, Dr. Lankford strangled and apparently lost consciousness. His young daughter attempted to save him and had gotten him almost to shallow water when a high wave broke her hold on her father and carried his body out to sea. The body was recovered the next day.

Dr. Lankford was forty-six years of age and an alumnus of the University of Richmond. During his career here he starred as a football player. Upon completion of his academic education he studied medicine at the University of Virginia, graduating in 1903. He was a member of his local and a number of national medical societies and was also prominent in the social life of Norfolk. He was the son of the late Dr. Livius Lankford, of Norfolk. Dr. Lankford's wife and two daughters survive him.